دستور الأدوية الدولي

The International Pharmacopoeia

الطبعة الثالثة

Third Edition

المجلد الأول

Volume 1

طرق عامة للتحليل

General methods of analysis

تمت الترجمة في المركز العربي للتعريب والترجمة والتأليف والنشر بدمشق

منظمة الصحة العالمية 1979

World Health Organization 1979

The International Pharmacopoeia

Third Edition

Volume 1

General methods of analysis

World Health Organization 1979

[illegible]

[illegible]

- [illegible]

1. [illegible] 372.

AMENDMENTS AND CORRIGENDA TO VOLUMES 1 AND 2

2. [illegible] 310.

AMENDMENTS AND CORRIGENDA TO VOLUMES 1,2 AND 3

3. [illegible] 256.

AMENDMENTS AND CORRIGENDA TO VOLUMES 1,2,3 AND 4

[illegible]

- [illegible]

- [illegible]

[illegible] R [illegible] RS [illegible] TS [illegible] VS [illegible].

[illegible]

[illegible]

[illegible]

[illegible] *International Pharmacopoeia* [illegible] 1951 [illegible] WHA1.10[1] [illegible] 1959 [illegible] supplement [illegible] 1955 [illegible] 1967 [illegible] 1971 [illegible]

[illegible] WHA20.34[2] [illegible] WHA28.66[3] [illegible] prophylactic [illegible] therapeutic [illegible]

[illegible] volumes [illegible] 1 [illegible] monographs [illegible]

[illegible] 1 [illegible]

.127 [illegible] 1973 [illegible] 1 [illegible] [1]

.132 [illegible] 1973 [illegible] 1 [illegible] [2]

.52 [illegible] 1979 [illegible] II [illegible] [3]

WHO Expert Advisory Panel

1978

1977-1974

[illegible]

[illegible] 42 [illegible] 1 [illegible]

[illegible] units [illegible] WHA30-39[4] [illegible] International System of Units (SI) [illegible] 3 [illegible]

[illegible] 1 [illegible]

[illegible] WHA3.10 [illegible]

[illegible]

[4] [illegible] II [illegible] 1979 [illegible] 99.

[illegible]

[illegible]

GENERAL NOTICES ƖuĎǰƳ lƑưϴǘĎ

Quantities and their precision ƑNJƗƽƣNj lƑĭĎǰǁ

ÛĞƸʐȦȭ ČȩǼǟ ğăŏăÀĎZqȃȿ ğÀĒǺÀÔţǟȿ ğăŏÀĠņŗă Ž ÿăÆÅǪèŸō ğǼĦţă Ȥ̀ɪăȥȮăȿ ǻăȥţă ğÀĿȶȭ ǟÀȩ Ǽƻ ɍ ǦȶǼȩ ɂŸȝ ȯǼǨ 20 ÛȯǺǯţă ŌǼGè ɂŸȝ .ÒÀȯă Ž ğÀÛȞţă decimals ĞÀÀÎȞȯă ÿÀȩǿɉă ǻÆȞă ČăȥŸÛţă ČȩǼȯă ɂŸȝ ȯǼǪÊȽȿ ɍ ǦȶǼȩ ɂŸȝ ȯǼǨ 0.20 Ü2.05 ȸȝ ǼÀÂǨ ɍȿ 1.95 ȸȝ ÔŌǨ ɍ ǦȶǼȩ ɂŸȝ ȯǼǨ 2.0 Ü20.5 ȸȝ ǼÀÂǨ ɍȿ 19.5 ȸȝ ÔŌǨ .0.0205 ȸȝ ǼÀÂǨ ɍȿ 0.195 ȸȝ ÔŌǨ

Temperature measurements and their precision ƑNJƗƽƣNj ƔƥƐƥϴǁ lƑƨƑĭƽ

.ÀȚǪȩǻȿ ğÀĿȮȭă ŌĎɉ ǨǼÛȝÀ ȶøǪÀȭ ČŏÀÎɳ ČÕÀÀÛă ğǿÀΣă ČĎǿǻ ğÀèÀǼŌō ČăȥŸÛţă ČȩǼȯă ɂŸȝ ȯǼǪÊȽ

Calculation of results ƛƏƑƗǆǁ ƒƑƨϴ

ƂÀ ǿȿǼȽ Ż ǼȾÛǪţă Ž ȼǼŏÀ ǨɪÀ Àư ÀǯȭÀ Ǽǵăȿ decimal ȻÀÎȝ ȴȩǿ ȷÀȮɳ ɂøǪǵ ğÀĒǺÀÔţă ǰăǪȹ ǟÀĒǵ Ǽƻ ăǽÀ Ü1 øă ȼȮĞÊÀ ȻØȭă ȴȩÀȭă ǻăÀȽ Û9 ƂÀ 5 ȸɳ ÀăȥÊȚ ǨņɉăȴȩÀȭă ȷÀȭ ăǽÀ:ƂÀǪȭă ȥHÀȭă ɂŸȝ ɂøǪǻɉă ƂÀ ȿÀ ɂŸȝɉă ÿȥĎȝǵ ÈǼǾŌǨ Ž ÛȾǯɳ ÛɁÀņɉă ğÀăÀÊΣă ɁÀϴ .ŌÀǼĞǨ ȷȿǻ ȼȮĞÊÀ ȻØȭă ȴȩÀȭă ŌÀǪȽ ÛŌȩÀ ȿÀ 4 ǨņɉăȴȩÀȭă ȷÀȭ .ĞŏÀÎɳ ĞÕÀÀÛă ÛŌǼŏÀȽă

Solution ǖĭƖƑϴĎǁ

.Ōǟă Ǩȡ ƂÀ ǿÀÎȽ ƁÀɳ ÛȷɈǼĦȽǪȭă ȯăÀɳ ȭÀţă ȿÀ ȭÀţǟ ğăŏÀĠņŗă Ž ĞǼĞţă ŌǼŏÀɇă ŌȭÀRơ

Solubility ƖuĭǆƑƇNjƤǁ

ȷÀ Ǽƻ .Ōǟă Ǩȡ ƂÀ ǿÀÎȽ ƁÀɳ Û°ÿ20 ǿȯÀǵ ĞĎǿǼă ČǼĞÀÀÔȭă ČǼȽÀăȿØȭă ƂÀ Àɳ ǿǻÀɳ ČǼȽÀăȿǟ ȯȥǵ ğăǿÀĞȞȯă ȯǼǨ ȷȥÒÀ ȶøǪȭă ÛȭăÀĎZqȭ ȸǼĞţă ȴȩÀȭÀă ŸǯŧȽ ÛǼÀŌţă (Ōɳ) ğăÀǪō ȶŸǼɳ ǻǼȝ ȤÔÀ ČǿÀĞȝɳă "Part ŏÀĎZ" ǨĞȞȭă ȴȚÀȽ .ÀăȿǟăǼŸÔȭă ȴÊƨă ȸɳ (ȟ) ÿÀȡ 1 ÀȚǼȥ

ǼŸÔȭă ȴÊƨă ȸɳ ȟ1 ŌĎɉ ăȥŸÛţă ǼÀǾţă ğăÀǪō ȶŸǼɳ ǻǼȝ	*ȶÀȯȥȭă ĞŸÛÔţă*
1 ȸɳ ŌȩÀ	Very soluble ǼĎZ ăăȿǟ
10 ƂÀ 1 ȸɳ	Freely soluble ăăȿØȭă Àǵ
30 ƂÀ 10 ȸɳ	Soluble ăăȿǟ
100 ƂÀ 30 ȸɳ	Sparingly soluble ȷÀȿØȭă ŌǼȩ
1000 ƂÀ 100 ȸɳ	Slightly soluble ȷÀȿØȭă ĞǼHɪ
10000 ƂÀ 1000 ȸɳ	Very slightly soluble ǼĎZ ȷÀȿØȭă ĞǼHɪ
10000 ȸɳ ÀǯȭÀ	Practically insoluble ǼŸȶȝ ăăȿǟ Ǩȡ

[illegible]

Loss on drying [illegible]

[illegible] 1.0 [illegible]

Constant weight [illegible]

[illegible] 0.5 [illegible] ignite [illegible]

Containers [illegible]

[illegible] permeability [illegible]

[illegible] *Well-closed container* [illegible] handling [illegible]

[illegible] *Tightly closed container* [illegible] deliquescence [illegible] efflorescence [illegible]

Protection from light [illegible]

[illegible]

Patents and trademarks [illegible]

[illegible]

[illegible]

Use of trade names [illegible]

[illegible]

Reagents, test solutions and volumetric solutions [illegible]

[illegible] VS، TS، IRS، R [illegible]

.167 [illegible]

UNITS OF MEASUREMENT [illegible]

[illegible] *Système international d' Unités* (International system of Units) (SI) [illegible] (CGPM) [illegible] .[5] [illegible] SI [illegible] (1960) [illegible]

[illegible] (SI) [illegible] submultiples [illegible] multiples [illegible]

[illegible] decimal multiples [illegible] (SI) [illegible] submultiples

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[5] [illegible] SI [illegible] *A guide to international recommendations on names and symbols for quantities and on units of measurement* [illegible] *The SI for* [illegible] 1975 [illegible] D. A.Lowe [illegible] *health professions* [illegible] .1977

ǺȣȻǮ	giga	(G)	10^{9}
ǺȣȻƞ	mega	(M)	10^{6}
ʐǶȻȭ	killo	(k)	10^{3}
ɄøǪȅ	centi	(c)	10^{-2}
ɄǶȻƞ	milli	(m)	10^{-3}
ȿǺǾȗ	micro	(μ)	10^{-6}
ʐǭǺǭ	nano	(n)	10^{-9}
ʐǾȻǽ	pico	(p)	10^{-12}

ǦȞǛÛȫ Ž Ǩƞ ƛ ȅ ɄøǪȫ ÛǦȞȞÔȫ ȴȅʐȭȿ ğ ȒȝŔƭ ÛǦȻǪȫ ğ ǵʐǭ Ȩʐ Êȫ ȻØŁ ȳ ǺȅǺ Ǵȓʐ

:Ƃȿ ǦȿǺɉ øʐȅ Ǧȝȫ

Units of length *ȯʐÛ ğǵǵȿ*	Units of mass *ǦǪÔ ğǵǵȿ*
(ȳ) Ǻƞ meter (m)	(ƞȭ) Kilogram (kg)
(ȴȅ) Ǻƞ ɄøǪȅ centimetre (cm)	(ȟ) ȳǺȡ gram (g)
(ȴƞ) Ǻƞ ɄǶȻƞ millimeter (mm)	(ƞƞ) ȳǺȡ ɄǶȻƞ milligram (mg)
(ȴÔƞ) ǺƞȿǺǾƞ micrometer (μm)	(ƞÔƞ) ȳǺȡ ȿǺǾƞ microgram (μg)
(ƅ) Ǻƞʐǭǭ nonometer (nm)	(ƞǭ) ȳǺȡ ʐǭǭ nanogram (ng)

Units of volume (capacity) *(ǦȞÊ) ȴǮΣ ğǵǵȿ*	Units of time *ȸƞÂ ğǵǵȿ*
^{3}ȴȅ1000 = (ȯ) Ǻǭ Litre (l) = 1000 cm^{3}	Ǧȅ year (a)
^{3}ȴȅ1 = (Ōƞ) Ǻǭ ɄǶȻƞ millilitre (ml) = 1cm^{3}	day (d)ȳʐ
^{3}ȴȅ 0.001=(ŌÔƞ) ǺǭȿǺǾƞ microlitre (μl)=0.001cm^{3}	Ǧȝȅ hour (h)
	ǦŌȿ minute (min)
	ǦȻǭ Second (s)
	ǦȻǭ ɄǶȻƞ millisecond (ms)
	microsecond (μs)

Units of temperature *ǵøΣ ǮØ ğǵǵȿ*	Units of pressure *Ȕ8Ȓ ğǵǵȿ*
ƙǺȭ kelvin (k)	ȯǾȅ ʐǶȭ kilogram (kPa)
(°ȳ) Ǧʐƞ ǮØ degree Celsius (°C)	ȯǾȅ pascal (Pa)

:ǦȯȽ ğɍΣ ȐȞ Ž ȒȖ Non-SI ğǵǵʐǶ ƂȿǺ ȳȚ ğǵǵȿ Ƙȡ ȸƞ ğǵǵȿ ǨƞƛȅǺ

0.69kPa ≈ (psi ÛùùȠ ŌÔÎ Ûȿ Ibf/in^{2}) ȝƞ (Ǧȯʐ) Ì ŌÔ ƛȿ ǵʐ

133Pa ≈ (ȨǦà ȴƞ Ûmm Hg) ȨǦà Ǻƞ ɄǶȻƞ

Units of electric current *ƱǝǻŔĀŢǾǖǟ øǻŔǭǖǟ ğǻŔǵş*

ĸǤŋǕ amper (A)

ĸǤŋǕ ƱŸĿŉ milliamper (mA)

ĸǤŋǕ ʐǫǻǷ nanoampere (nA)

Units of electric potential ƱǝǻŔĀŢǾǖǟ ǼŢƨǻ ğǻŔǵş

Ǩǻʐʐ volt (v)

Ǩǻʐʐ ƱŸĿŉ millivolt (mv)

Units of resistance ǴŋşǻǾţǻ ğǻŔǵş

ÿşǕ ohm (Ω)

Units of radioactivity [6] *ǦŀʒǻȞìqǻ ğǻŔǵş*

ŌǻÃǾŀǻǺ8ĿDZ Gigabecquerel (GBq) = 27.03mCi

ŌǻÃǾŀǟ Ǻ8Ŀŉ megabecquerel (MBq) = 27.03μCi

ŌǻĸǾŀǟ becquerel (Bq) = 27.03pCi

Ƀǿʐȭ Curie (Ci) = 37GBq

Ƀǿʐȭ ƱŸĿŉ millicurie (mCi) = 37MBq

microcurie (μCi) = 37KBq

---

[6] ƱǛʒǕ ƵǻÃȞ ğǻŔǵş ǭǻȞìqǻ ĶƠ ʒǻʐǻ "ǥǻşǻɉǟ ǦȞÎţǻ Radiopharmaceuticals" (ǺŢǫǟ ǾǖǻǾǖǟ ğǻŔǵş 45-42).

PHYSICAL METHODS ƕĭəƑĭŖĭƻǁɛ 5ƥƯ’ǁɛ

MEASUREMENT OF MASS ƕŧłǁ Ƨƒĩƨ

ǦſèİÊǵş capacity ǦȞè ğăǽ balances ȸȁàăẕɳ ÿăǼǺʠèă ǦŸʠȮöă ȃȂſȩ ȤǞƉȮǩ ǷøȹöăǧăøİǤʠǹɍă ǼŸÛʠǩ .ǵåẕÔȍţă accuracy ǦſùẕǦȒţă ǦDZøǻ Ʒɳ ȷȌẕăẕʠǩ sensitivity

accurately ǦſùẕǦȒɳ ǦʠşàẕɳƳ ȷẕȮǩ ȷǕ ȏȂʠȦţăş ȀǯȍǕ şǕ ɳŸɳ 50 ǦǦǩø ȸɳ ğȂſŧȍ ȷàş ǼȂȝ Ȁɳɉă ǼŸÛʠȂ ȷàş ǼȂȝ Ȁɳɉă ǼŸÛʠȂ ȬöøȬş .ɳŸɳ 0.1 ǦſèİÊƜş ȟ 200-100 ǦȞè ɃǽƱŸſŸƠ ȷăÂſɳ ÿǼǺʠèă ÛƳweighed

0.001 ǦſèİÊƜş ȟ 20 ǦȞè ɃǽƱŸſŸƠ ȷăÂſɳ ÿăǼǺʠèă ÛƳǦſùẕǦȒɳ ȷàẕǩƳ ȷǕ ȏȂʠȦţăş ɳŸɳ 50 ȸɳ Ȫȩǔ ğȂſŧȍ .ƱŸſŸƠ microbalance ɃşȀȮɉ ȷăÂſɳ ǵåȝ ɁŧÊȂ ÛɳŸɳ

.ǦŸʠȮŸö ȃȂſȩ ȂŦſẕ ȤǞƉȮł ɁȀǹǕ ğăøİǤʠǹă ȬDZɉ ǦȒȦǺȂɳ ǦſèİÊǵ ğăǽ ȸȁàăẕɳ ÿǼǺʠÊǩ

Apparatus ȐƑNJƜǁ

ǼŸÛʠȂ ÛƙȝăøØöă ɃşİÊʠɳ ȔƴȸɳȦɳǕ ȷẕȮǩ ȷǕ ȸȮƨ .ƙʠſẕİȍ ǦſèİÊǵş ǦȞè ǦſŸſŸƕʠöă ȸȁàăẕţă ȬŸʠʠ ȷǕ Ǽƶ ȃȂſȪöă ÿǼǺʠÊǩ ǦſŸſŸƠ ǦȂşȀȮɉ ȸȁàăẕɳ ÛƜƳǯɳ) ȀǹǕ ǼèȦȂɳ ȔƴɃǕ şǕ ÛǥȀƕƴţă ȷăàşɉă ȸɳ ǦȝẕŧƒÿăǼǺʠèă .ǵȀƕƴţă ȷăàşɉă ȸɳ ǦſȞDZȀɳ ǦȝẕŧƒǦùİèẕǽ ȂøşåȂŁǗăåǕ ȰƕȦł ȷǕ ȓȀȉ (magnetic ƱÊſùȀȂ8ţă

ȯǼȞƕ ɍ ȷǕ Ǽƶş ȓȀȂɦ åȂŦDZǕ ɃǕ ȯẕÔǵ ȷşå ǦŸɳȮöă ȼʠȞè ȰſŧƠ ȬDZɉ ƱŸſŸƕʠöă ȷăÂſţă ǖſŦł ȷǕ Ǽƶ ɁŸȝ) damping device ǼſŧƠ ǵȂſŦƛ ȂŦDZł ȷǕ ȬȒȦţă ȸɳş .ǦȞÊöă ǦŸɳȮȍ ǦöẕŧΣ øȀȮʠţă ȷàẕöă ǦDZſʠɸ ȼʠſèİÊǵ ȷăÂſɳ) ǦǵăȀöă øẕù ƂǕ ǦȝȀÊǽ beam ȷăÂſţă ȨǩȂȝ ǵǻẕȝ ǼƟÊȂ ɃØöă (ƱǝẕŁ şǕ ƱÊſùȀȂ8ɳ ǼŧǺɦ ÛȯȂǯţă ȬſǦè .(aperiodic balance Ƀøşǻɍ

ȂŦDZł ȷǕ ÛȬȒȦɳ ȬȮȊǽ ÛşǕ ȷàşɉă ȝſŧƨ manual placement ɃşǼſöă Ʒȓẕö ƱŸſŸƕʠöă ȷăÂſţă ǖſŦł ȷǕ Ǽƶ ğƳDZÊɳ ȂŦƶ ȷǕ Ǽƶ ǵƘǹɉă ǦöȂΣă Žş .ȷăÂſţă ȯȂƒ ȸɳ ȭȀƨ şǕ ȬȮö weight –loading ȷàẕöă ȬſŧƠ ǵȂſŦƛ ɃȀȮǽ ȷăÂſɳ ȃẕȩ ȏȂȝ ÿȂŢǽ ƱŸſŸƕʠöă ȷăÂſţă ȂŦƶ ȷǕ ȸȮƨ ÛȬöØö ǦẕȂȓǕ .ȨƜÛţă ȬŧΣă ɁŸȝ ǳẕȓẕǽ ȯǼǩ ȬſŧƠ ȏşȀƕţă ȃẕȬŸö ǳȂȂȂʠă ɃǕ ƱÛƕł ǬſǵǕ ÛƜƳǯɳ) ȷăÂſţă ȯȂƒ ȸɳ ȭȂDZ ǵåȝ ȬŧȊȂ optical scale projection system .ȀǹǕ ȔƴȸɳǵȂſŦDZɃǕ şǕ Û(ȷàẕŸö ǵöȂȩ datum line ɁÛȞţă Ȕȗă ƂǕ ǦǦÊʠ

ǦȂȮöă ɃǽƘȂǯöă ȬŧΣă ȷăÂſɳ ẕŁ ǦȞÊöă ȯȂƒ ȬɳȂȍ àşȂDZʠǩ ǦʠǽȂʠ ǦſèİÊǵ ȼö ɃØöă ƱŸſŸƕʠöă ȷăÂſţă ȔƴȷǕ counterpoised ȷşàẕţă ȬȍǯŸö ȬǽȂȍţă ȷăÂſţă ȨǩȂȝ ɁŸȝ ǦȍȞɳ ȷàşɉă ȸɳ ǦŸÊŸè ȷăÂſţă ȂØŢş .single-pan ǵǼǵăẕöă ȯẕÔΣă ɁøʠǵȂşǼȂ Ȭ8ȊǩǦſȮſʠȮſɳ ǵȂſŦDZ ǦÛèăẕǽ ȷăÂſţă ȨǩȂȝ ȸɳ ȷàşɉă ǢØŁ ƷẕȀł ÛȷàẕŸö ǦŸŧȝ Ž Ûbeam .ȷàăẕʠöă ɁŸȝ

ǖſŦł ȷǕ Ǽƶş .Ǧʠşàẕţăǵåţă Ʒȓẕǽ ǴŧÊǩ ǦǦèȂɳ ğȂƕʠȂǽ ȂŦƒ ȋȀǹ ɁşǖɳŽ ƱŸſŸƕʠöă ȷăÂſţă ǼŧȊȂ ȷǕ Ǽƶ

[illegible]

[illegible] Placement of balance

[illegible] leveling [illegible]

[illegible] Checking of sensitivity

[illegible]

RECOMMENDED PROCEDURE [illegible]

[illegible] Checking the stability of the equilibrium position

[illegible] one-tenth [illegible] 0.001 [illegible] 0.1

[illegible] Operation of the balance

[illegible] beam [illegible] pan supports [illegible]

[illegible] crucibles [illegible] beakers [illegible]

[illegible] buoyancy [illegible] forceps [illegible]

[illegible]

DETERMINATION OF MELTING TEMPERATURE, MELTING RANGE, CONGEALING POINT, BOILING POINT, AND BOILING RANGE

[illegible] (triple point [illegible]) [illegible] Celsius [illegible] (°C) [illegible] "melting point [illegible]" [illegible]

[illegible]

[illegible]

[illegible] melting range [illegible]

[illegible] apparent constants [illegible] reproducibility [illegible]

[illegible] .A

Determination of Melting Temperature and Melting Range of Pulverizable Substances

[illegible] corrected [illegible] *melting range* [illegible] collapse [illegible]

[illegible] "melting range *a-b* °C [illegible] *b-a* [illegible]" [illegible]

[illegible] *melting temperature* [illegible]

Apparatus [illegible]

[illegible]

[illegible] Silicones [illegible]

[illegible] 360+ [illegible] 10– [illegible] 0.8 [illegible] solid-stem [illegible] safety [illegible]

[illegible] *total-immersion-thermometer* [illegible] liquid column [illegible] *partial-immersion thermometer* [illegible] emergent liquid column [illegible] emergent-stem [illegible]

[illegible] borosilicate [illegible] 1.1-0.9 [illegible] 0.15-1.10 [illegible]

[illegible] [7] [illegible]

RECOMMENDED PROCEDURE [illegible]

[illegible] 24 [illegible]

[illegible] 3 [illegible] 5 [illegible]

---

[7] [illegible] 263+ [illegible] 69+ [illegible] Box 3045, S-171 03 solna, sweden [illegible]

[illegible]

[illegible] mark.

[illegible]

[illegible]:

$$0.00015\, N(T - t)$$

[illegible] T [illegible]

[illegible] t [illegible]

[illegible] N [illegible]

[illegible] emergent-stem [illegible] T [illegible] Ts [illegible]

[illegible]

[illegible]

Determination of Melting Point of Fats, Waxes, etc

[illegible]

Apparatus [illegible]

[illegible]

RECOMMENDED PROCEDURE [illegible]

[illegible]

C. [illegible]

Determination of Congealing Point

[illegible]

Apparatus [illegible]

[illegible]

RECOMMENDED PROCEDURE [illegible]

[illegible]

[illegible] **D.**

Determination of Boiling Point

[illegible]

Apparatus [illegible]

[illegible]

RECOMMENDED PROCURE [illegible]

[illegible]

emergent- ... stem ... 670) ... 101.3 ...

$k(p - p_1)$

barometric ... p ... p_1 ... k

$p = 101.3$

$k = 0.3$ ... 1 ...

$p = 760$

$k = 0.04$ ... 1 ...

Determination of Boiling Range (Distillation Range)

Apparatus

receiver ... 60-50 ... 12-10 ... side-arm ... 16-14 ... 12-10 ...

75-70 … 5 …

60-55 …

… 40 …

bent adapter … delivery …

0.5 … 50-25 … receiver …

Bunsen … K8 …

7-5 … asbestos …

16-14 …

4-3 …

A … 100 …

emergent-stem correction …

bulb … stem …

RECOMMENDED PROCEDURE

25 … 0.5-0.3 …

10-5 … 1 … 3-2 …

(distillation ranges …)

101.3 (Kpa) … 760 …

0.1 … 0.36 … 2.7 …

[illegible]

DETERMINATION OF MASS DENSITY AND RELATIVE DENSITY

[illegible] (Q) [illegible] .cubic meter [illegible] 1 [illegible] (SI) [illegible] 1 [illegible] 1 [illegible] reduced to vacuum [illegible] buoyancy [illegible] (Q_{20}) °20 [illegible] .(conditions [illegible] °20 [illegible] (d_{20}^{20}) [illegible] specific gravity [illegible] "d_{20}^{20} [illegible]" [illegible] ."°20 [illegible]

[illegible] °20 [illegible] d_4^{20} [illegible] 0.998234 [illegible] °20 [illegible] .°4 [illegible]:

$$d_4^{20} = 0.998234\, d_{20}^{20}$$

RECOMMENDED PROCEDURE [illegible]

[illegible] hydrostatic [illegible] d_{20}^{20} [illegible] . pycnometer ([illegible]) [illegible] (g/ml [illegible] kg/l [illegible]) Q_{20} [illegible].

$$Q_{20} = 0.99703\, d_{20}^{20} + 0.0012$$

Use of pycnometer [illegible]

[illegible] plummet [illegible] .beam [illegible] riders [illegible]

[illegible]

Use of pycnometer [illegible]

[illegible] 5 [illegible] °[illegible]20 [illegible] mark [illegible] 30 [illegible] °[illegible]1±20 [illegible] inter [illegible] °[illegible]1±20 [illegible] (d_{20}^{20}).

[illegible]

DETERMINATION OF OPTICAL ROTATION AND SPECIFIC ROTATION

[illegible] optical activity [illegible]

optical rotation [illegible]

[illegible] dextrorotatory [illegible] (+) [illegible] (–).

[illegible] (*a*) [illegible] angular [illegible] radian (rad) [illegible] (SI).

[illegible] 589.3 [illegible] (sodium D line) D [illegible] 589.0 [illegible] 589.6 [illegible] 546.1 [illegible]

[illegible] photoelectric polarimeter [illegible]

[illegible] .°ÿ25-20 [illegible]

[illegible]

[illegible] Specific optical rotation (specific rotation)

[illegible] 100 [illegible]

[illegible] 100 [illegible]

$$\frac{10\,000}{ldp} = \frac{10\,000a}{lc} = [illegible]$$

[illegible] c [illegible] l [illegible] a [illegible] 100 [illegible] p [illegible] d [illegible] 100 [illegible]

[illegible] λ [illegible] t [illegible] $[\alpha]_\lambda^t$ [illegible] (SI) [illegible] m²·rad/mol [illegible] (a_n) molar [illegible] m2·rad/kg [illegible]

[illegible] Apparatus

[illegible] .polarimeter [illegible]

[illegible] 0.05° [illegible] 0.01° [illegible]

[illegible] :visual [illegible]

.mercury-vapour lamp

:photoelectric

.0.01°

Measurement of optical rotation

alignment

.optical bench

mark

monochromatic

transmitting

D

546.1

micro

semi-micro

uniform

end-plates

strains

end-plate strain

[illegible] blank [illegible] mark [illegible] meniscus [illegible] 30 [illegible] mutarotation [illegible] racemization [illegible]

[illegible] 6 [illegible] visual [illegible] sign [illegible]

DETERMINATION OF REFRACTIVE INDEX [illegible]

[illegible] (n) [illegible] velocity [illegible] vacuun [illegible] (n_{λ}^{t}) [illegible]

[illegible] incidence [illegible] sin [illegible]

[illegible] (lin D [illegible]) [illegible] 589.3 [illegible] (n_{D}^{20}) 20 ± 0.5° [illegible]

Apparatus

(D) 589.3

prisms

20° 1.330

25° 1.3325

SPECTROPHOTOMETRY IN THE VISIBLE AND ULTRAVIOLET REGIONS

electromagnetic radiation

monochromatic

spectral range

spectrum

(780-380) (380-190)

monochromatic

quantitative

International

Pharmacopoeia

(*T*) 10 logarithm – (*A*) *Absorbance*

8 ǻăÀŧõ internal transmission density ĞĚŸǹăǼöä ȯÅŐǫɍă ǦźÅĵõ ǴŸÛÔɧ ŐŧȞǪÊǿ Jǚ ȸȮƩ .transmittance

ŏÅÀÛǫɍăş ÛǴĦòÅŧǪöä Ûoptical density ǦħÀÔŧöä ǦźÅĵÒöä ȀŐäÀè ǦɳǼÅǪÊţă ǦĚÀòźöä ğÅĦŸÛÔţă ȸŧȒǪǩ Ûȵî ÅŧǪŸö

.extinction

ǥƎǪÅţă ǥǻÅţă ȯŸǹ ȸɳ (ǾźÅǺöä) ȧøÅţă radiant flux ȝÎţă ĘźǼǪöä ǦǤÊǫ – *Transmittance (T)* *(ǽÅǺǾöä) ȧǻÀǪɳɍă*

.transmission ȯÅŐǫɍăş transmittancy ǦǼǽÅÀǺöä ȀŐäÀè ǦŸŧȞǪÊţă ğÅĦŸÛÔţă ȸŧȒǪǩ .ȝÎţă ĘźǼǪöä Őöǽ ƃǚ

ÀǼȞţă Û(*c*) ǥǻÅţă ÂĚõÀǩ ăÀȓ ǰǩÅǫ ɁŸȝ ȀɳźÊŐɳ absorbance (*A*) ɳî ÅŧǪöä ŐòÅǵ – *Absorptivity* (*a*) ǦħòÅţă

ÅŐĚǪş JÅĦŸÛÔɧ ǼǱźÀ .(ȴè) ÀǪɳ ɄøǪÀÊöÅǽ ȼÀȝ ÀǼȞţă (*b*) îÅÔǪɳɍă øÅÊɳ ȯźü ȝɳ ÛÀǪö 1 Őõ Ž ÿăÀ8öÅǽ ȼÀȝ

specific absorption Ʉȝ źÀöä îÅÔǪɳɍă ŐɳÅȞɧş specific extinction Ʉȝ źÀöä ŏÅÀÛǫɍă ÅƵ ǦħòÅţÅǽ ǦŸÔöä

ŐòÅǵ ɁŸȝ ÛǴÀşǻɉă ƘǩÀèǻ Ž ȀɳźŧȝÿǼÅǪÊɧ źȽ ÅŧõÛ($E_{1cm}^{1\%}$) "Ʉȝ źÀöä ŏÅÀÛǫɍă" ǴŸÛÔɳ ȯǼÀ .coefficient

ȯźü ȝɳ ÛŐɳ100 Őõ Ž ÿăÀ8öÅǽ ȼÀȝ ÀǼȞţă Û(*c*) ǥǻÅţă ÂĚõÀǩ ăÀȓ ǰǩÅǫ ɁŸȝ ȀɳźÊŐɳ absorbance (*A*) ɳî ÅŧǪöä

Ʉȝ źÀöä îÅÔǪɳɍă ŐɳÅȞɳ" ǴŸÛÔɧ 8ÀȞǿ . $E_{1cm}^{1\%} = 10a$ ăǾÒŁş ÜÀǪɳ ɄøǪÀÊöÅǽ ȼÀȝ ÀǼȞţă (*b*) îÅÔǪɳɍă øÅÊɳ

Commission on ǦĚəÅĚŧĚÒöä ǦĚəÅÀÂĚÀöä ăźɳÀöä ǦÅĚȽ ŐǤę ȸɳ ȀĚəǼǤɳ ǳźÀǪŐţă Û"specific absorption coefficient

ŏÅĚŧĚÒŸö ƃşǼöä ǻÅƠŸö Units ǦĚöşǼöä ğăǼǵźöäş Terminology ğÅĦŸÛÔţă ȴŸȝş ÛPhysicochemical Symbols

îÅŧǪöä ŐòÅǵ ȼǫǚ ɁŸȝ ÛPure and Applied Chemistry (IUPAC) International Union of ǦĚŐĚǤÛǪöäş ǦÔöÅɿă

îÅÔǪɳɍă ŐɳÅȞţ a_{SI} ÂɳÀöä ÿǼÅǪÊÀ ÅɳǼȝ Ü(*l*) îÅÔǪɳɍă øÅÊɳ ȯźü ȝɳ (*c*) ÂĚõÀǪöä ăÀȓ ǰǩÅǫ ɁŸȝ ȀɳźÊŐɳ (*A*)

.a_{SI}= 100*a* Û(ȠŸõ) ÿăÀɖ źŸĚõ 1 Őõ Ž (²ÿ) ȝǽÀţă ÀǪţÅǽ ǦĚöşǼöä ğăǼǵźöä ÿÅŢǫ Ž ȼÀȝ ƎȞǿ Jǚ ƽƶ ɃǾöä ÛɄȝ źÀöä

ŏÅÀÛǫɍă ŐɳÅȞɧ şǚ absorbancy index îÅŧǪöä ǼĚÊÀɧş "absorptivity ǦħòÅţă" ƙǽ âÀǤǪöä ǫǼȝ ɍ Jǚ ƽƶ

.extinction cofficient

ÂĚõÀǩ ăÀȓ ǰǩÅǫ ɁŸȝ ȀɳźÊŐɳ absorbance (A) ɳî ÅŧǪöä ŐòÅǵ – *Molar absorptivity* (ε) ǦĦöźţă ǦħòÅţă

ǰǩÅǫ ȼǫǚ Åŧõ .(*a = A*/*bc*) ÀǪɳ ɄøǪÀÊöÅǽ (*b*) îÅÔǪɳɍă øÅÊɳ ȯźü ȝɳ ÛÀǪǿ 1 Őõ Ž ğɍźţÅǽ ȼÀȝ ÀǼȞţă Û(c) ǥǻÅţă

molar ƃźţă îÅÔǪɳɍă ŐɳÅȞɧ ǴŸÛÔɧ 8ÀȞǿ .ǥǻÅŧŸö ɄĚəÂƨă JÀźöä ȝɳ absorptivity (a) ǦħòÅţă ăÀȓ

Commission on ǦĚəÅĚŧĚÒöä ǦĚəÅÀÂĚÀöä ăźɳÀöä ǦÅĚȽ ŐǤę ȸɳ ȼǽ Ɂòźţă (Linear ȀĚÛǹ) absorption coefficient

ǦÔöÅɿă ŏÅĚŧĚÒŸö ƃşǼöä ǻÅƠŸö Units ǦĚöşǼöä ğăǼǵźöäş Terminology ğÅĦŸÛÔţă ȴŸȝş ÛPhysicochemical

ȯÅŐǫɍă ǦźÅĵõ ŐòÅǵ ȼǫǚ ɁŸȝ ÛInternational Union of Pure and Applied Chemistry (IUPAC) ǦĚŐĚǤÛǪöäş

ȝɳ ǥǻÅţă ÂĚõÀǩ ăÀȓ ǰǩÅǫ ɁŸȝ ȀɳźÊŐɳ ǥǻÅŧŸö (absorbance îÅŧǪöä) internal transmission density ɄŸǹăǼöä

ğÅĦŸÛÔţă ȸŧȒǪǩ .ȯźɳ 1 Őõ Ž ²ÿ øÀǽ ȼÀȝ ÀȞǿ Jǚ ƽƶ ǦĚöşǼöä ğăǼǵźöä ÿÅŢÀö ȀĦǤǩş Û îÅÔǪɳɍă øÅÊɳ ȯźü

ŏÅÀÛǫɍă ŐɳÅȞɳş absorbancy index ǦĚòÅŧǪöä ƽĚÊɳ molar absorptivity ǦĚöźţă ǦħòÅţă ŐǱɉ ȀŐäÀè ǦŸŧȞǪÊţă

[illegible] molar extinction coefficient.

[illegible] – *Absorption spectrum* [illegible] graphic.

[illegible] photometrically [illegible].

[illegible] stray light [illegible] slit-width [illegible] polychromic radiation [illegible] solute [illegible] molecules [illegible] association [illegible] dissociation [illegible] ionization.

Apparatus [illegible]

[illegible] monochromatic radiant energy [illegible] dispersing device [illegible] detector [illegible] associated [illegible] amplifiers [illegible] automatic [illegible] 380 [illegible] 700 [illegible] 190 [illegible] 700 [illegible].

[illegible] double-beam [illegible] single-beam [illegible].

[illegible] housing [illegible] 1 [illegible] silica [illegible].

[illegible]

Spectrophotometer calibration [illegible]

[illegible] calibrations [illegible] photometric scales [illegible] spectral line [illegible]

[illegible] quartz-mercury arc [illegible] – [illegible] 435.83 [illegible] 404.66, 365.48, 334.15, 313.16, 302.25, 253.7 [illegible] parseodymium [illegible] didymium [illegible] holmium [illegible] (neodymium [illegible] 3±536.2 [illegible] 1±360.9 [illegible] 1±287.5 [illegible] 1±241.5 [illegible] maxima [illegible] 241.15 [illegible] holmium perchlorate TS [illegible] 536.3 [illegible] 361.5 [illegible] 278.2 [illegible]

[illegible] %1± [illegible] photometric scale [illegible] potassium dichromate TS [illegible] absorpitivity [illegible] specific extinction [illegible] absorbance [illegible] sulfuric acid [illegible] 1000 [illegible] 60.06 [illegible] potassium dichromate [illegible] 1.000 [illegible] VS ([illegible] 0.005) [illegible] *A* [illegible]:

[illegible] 350 ([illegible])	[illegible] 313 ([illegible])	[illegible] 257 ([illegible])	[illegible] 235 ([illegible])	wavelength [illegible]
0.640	0.292	0.865	0.748	*A*
0.646-0.634	0.295-0.289	0.874-0.856	0.756-0.740	[illegible] permitted tolerance
106.56	48.62	144.02	124.54	$E_{1cm}^{1\%}$

[illegible] transmittance [illegible] inorganic [illegible] national institutions [illegible] photometric scale [illegible] periodic calibration [illegible].

Operation of spectrophotometers [illegible]

[illegible] valid [illegible] instruction manual [illegible] double-beam [illegible] calibration [illegible] reference beam [illegible].

[illegible]

solvents for use in the ultraviolet region [illegible]

[illegible] lower [illegible] hydrocarbons transparency [illegible]

[illegible] 1 [illegible] 0.4 [illegible] 750~) [illegible] 1 [illegible] cyclohexane [illegible] 240 [illegible] 10 [illegible].0.

Identification tests in the ultraviolet region

qualitative

International Chemical Reference Substance

%10

transmittance

Quantitative determinations in the ultraviolet region

280-240 0.5±

320 2± 320-280 1±

International

Quantitative determinations in the visible region

"Quantitative determinations in the ultraviolet region"

5

SPECTROPHOTOMETRY IN THE INFRARED REGION

electromagnetic spectrum

250-4000 cm^{-1} (40-2.5 µm)[1].

optical isomers

Polymorphism

transmittance *absorbance* *absorption spectrum*

specific extinction *absorptivity*

"Spectrophotometry in the visible and ultraviolet regions" (24)

Apparatus

[1] Wavelengths wavelengths

.detection devices optical materials

.detector monochromator

670-4000 cm^{-1} (15-2.5) reliability

.polystyrene film

attenuated total reflectance technique

single-reflection attachment

alignment

.maximum transmission

Use of solvents

IR carbon tetrachloride 4000 1700 cm^{-1} (2.5 6)

2400 - 2000 cm^{-1} 250 cm^{-1} 40

1800 - 1300 cm^{-1} (4.2 - 5.0) (5.5 - 7.5)

875 - 845 cm^{-1} (11.4 - 11.8)

.transparency

Preparation of the substance to be tested

mineral oil

potassium halide

attenuated total reflectance technique

[illegible]

[illegible]

[illegible] capillary film [illegible] *Method 1* [illegible]

[illegible] *Method 2* [illegible] mull [illegible] 5-2 [illegible] semi-transparent [illegible]

[illegible] potassium halide [illegible] *Method 3* [illegible] IR [illegible] IR [illegible] 1 [illegible] 200– [illegible] 1 [illegible] prism instruments [illegible] 300 – [illegible] 300 [illegible] 1.5 [illegible] grating [illegible] halide – [illegible] 300 [illegible] 1.0 [illegible] 15-5 [illegible] 2000 [illegible] 5 [illegible] transmission [illegible] specific absorption [illegible] %75 [illegible] compensation.

[illegible] *Method 4* [illegible]

Identification by reference substance [illegible]

[illegible] 4000 [illegible] 670 [illegible] 2.5 [illegible] 15 [illegible] %5 [illegible] %2 [illegible] transmittance.

[illegible]

[illegible] 2 [illegible]

[illegible] 2 [illegible] mineral oil [illegible] fluorinated hydrocarbon oil [illegible] hexachlorobutadine [illegible]

Identification by reference spectrum [illegible]

[illegible] (15 [illegible] 2.5) $^{1-}$[illegible] 670 [illegible] 4000 [illegible] International Reference Spectrum [illegible] International Reference [illegible] reference absorbance [illegible] Spectrum International [illegible] superimposed [illegible] polystyrene [illegible] maxima 9.73) $^{1-}$[illegible] 1028 [illegible] 6.25) $^{1-}$[illegible] 1601 [illegible] 3.51) $^{1-}$[illegible] 2851 [illegible] Reference Spectrum [illegible]

[illegible] International Reference [illegible] Spectrum [illegible] resolving power [illegible] International Reference Spectra [illegible] (5 [illegible] 2.5) $^{1-}$[illegible] 2000 [illegible] 4000 [illegible]

Attenuated total reflectance technique [illegible]

[illegible]

translucent

2-1

rubber

reflecting element. plastic materials

proper alignment attachment.

ATOMIC ABSORPTION SPECTROPHOTOMETRY

ground state

flamless

Apparatus

spectral line

nebulizer-burner system

hollow-cathod

[illegible] monochromator [illegible]

Use of solvents [illegible]

[illegible] .burner-aspirator [illegible] %2 [illegible]

RECOMMENDED PROCEDURE [illegible]

[illegible] 3 [illegible]

[illegible] 3 [illegible]

[illegible] 3 [illegible]

FLUORESCENCE SPECTROPHOTOMETRY [illegible]

[illegible] 30 [illegible] 20 [illegible]

[illegible]

[illegible] dilutions [illegible]

[illegible]

Terms [illegible]

[illegible] *Fluorescence intensity* [illegible]

[illegible] *Fluorescence emission spectrum* [illegible]

[illegible] *fluorescence excitation spectrum* [illegible]

Apparatus [illegible]

[illegible] (fluorometer [illegible]).

[illegible] 90° [illegible] incident beam.

[illegible]

tungsten

xenon arc

slits

high resolution

3-2

0.3-0.1

Standardization

fluorophore

fluorophore

quinine

sodium fluorescein

rhodomine

Calibration of the wavelength scale

Preparation of solution [illegible]

[illegible]

[illegible] 100 [illegible] 10 [illegible] "inner fulter [illegible]" [illegible] 10-7-10-5 [illegible]

[illegible] $(c-d)/(a-b)$ [illegible] a [illegible] b [illegible] c [illegible] d [illegible] 0.40 [illegible] 2.50 [illegible] solvent blank [illegible]

Measurement technique [illegible]

[illegible] exciting beam [illegible]

[illegible]

[illegible] 1 [illegible] %2-1 [illegible]

[illegible]

TURBIDIMETRY AND NEPHELOMETRY [illegible]

[illegible]

Terms [illegible]

Transmittance (T) [illegible]: [illegible] Tarnsmittancy [illegible] transmission.

Turbidance (S) [illegible]: [illegible] light-scattering effect [illegible].

Turbidity (τ) [illegible]: [illegible]

Apparatus [illegible]

[illegible]

Instrumental measurement [illegible]

[illegible]

Visual comparison [illegible]

[illegible] 70 [illegible] 23 [illegible]

COLOUR OF LIQUIDS [illegible]

[illegible]

RECOMMENDED PROCEDURE [illegible]

[illegible] 16 [illegible] 50 [illegible] 10 [illegible] 10 [illegible]

Stock Colour Standard Solutions [illegible]

Yellow stock standard TS [illegible]

[illegible] 10.7 [illegible] 1.9 [illegible] 9.5 [illegible] 10 ~) [illegible] 100 [illegible] 4.0 [illegible]

Read stock standard TS [illegible]

[illegible] 6.3 [illegible] 6.1 [illegible] 40.5 [illegible] 10 ~) [illegible] 100.0 [illegible] 12.0 [illegible]

Green stock standard TS ÀȒǹɉ ȸÂƪ ɃøȞţ ȯƺŸǂ

ɈƺǾ ȯƺŸƮ ȸȠ Ǭȡ 10.4 ÛTS ǡȞ ɈƺǾ ȯƺŸƮ ȸȠ Ǭȡ 20.1 ÛTS ǨȮ ɈƺǾ ȯƺŸƮ ȸȠ Ǭȡ 3.5 ƂǗ ȣȒɫ 10~) ǬøƺŸÊ Ȑƥ ȯƺŸȠ Ǭȡ 100.0 ƂǗ ƵÅƩ ÛTS ǼΣ ɈƺǾ ȯƺŸƮ ȸȠ Ǭȡ4.0 ÛTS ǧȠȘȮ ɄǝǬ .ǯÂɫȘ ÛTS (ȯ/ȟ

Brown stock standard TS ɄøǬ ɄøÂƪ ɃøȞţ ȯƺŸǂ

ɄǝǬ ȯƺŸƮ ȸȠ Ǭȡ 8.0 ÛTS ǡȞ ɈƺǾ ȯƺŸƮ ȸȠ Ǭȡ 17.0 ÛTS ǨȮ ɈƺǾ ȯƺŸƮ ȸȠ Ǭȡ 35.0 ƂǗ ȣȒɫ .ǯÂɫȘ ÛTS ǼΣ ɈƺǾ ȯƺŸȠ Ǭȡ 100.0 ƂǗ ƵÅɫ ÛTS ǧȠȘȮ

Standard Colour Solutions ȟƥƑȳǄ ǅǋǂ ǘǰƟǄ

ɄøǬ ȸÂƪ ɃøȞţ ȯƺŸǂ) ǴÂƪ ǴøȞţ ǬȞɫ ǼèţƵ ƵÅǬ ɃøȞţ ɈƺŸ ȯƺŸƮ ÀȒɫ ȸȠ ɃøȞţ ɈƺŸ ȯƺŸƮ ǴɫÊ ɈȯǬ .TS (ȯ/ȟ10 ~) ǬøƺŸÊ Ȑƥ ȯƺŸȠ (Àòɉ Àƥɉ ÀȒǹɉȘ ƵÔ ȴȩøȘ (ɄøǬ Bnş ÛȒǹǬ Gn ÛƥǬ Rd ÛòǬ Yw) ȸÂƪ ɃøȞţ ȯƺŸǂ ɈÔ ƙǬ ƙƺǵ .ǴǗ ƾÛȟ ƺŁ ɫõ ÛƵÅǬ

ɈƺŸ ǬǂƵÅǬ ȴø ɃøȞţ	*ȸÂƪ ɃøȞţ ȯƺŸǂ (Ǭȡ)*	(*ȯ/ȟ10*) ǬøƺŸÊ Ȑƥ ȯƺŸƮ (*Ǭȡ*) *TS*
0	0.78	99.22
1	1.65	98.44
2	3.12	96.88
3	6.25	93.75
4	12.50	87.50
5	25.00	75.00
6	50.00	50.00
7	100.00	–

ȸȮȘ Ȅɫ Îǝ ǦȟìǗ ȸȠ ǴɫƮ ÛǦǬȡ ǴǅǅǼ ǴȝȘ Ž 7-4 ƙ ȳȩøɉ ǧǽ ǴøȞţ ɈƺŸ ǬǂƮ ȸÂơ ȸȮƺ .ǼŸǬ Ǽȝ ÀȒɫ ɈǗ ǼǄƺ ǯõǗ ǴÅţ ǴøȞţ ɈƺŸ ǬǂƮ

RADIOPHARMACEUTICALS ȟȳƪǄ ȟǋǬǙ

(radioactive pharma- ȝȟìǗ ǴÛÎ ǴɍǼÔ ǻƺţ) ǦÎţ ǴȘǻɉ ǿǬǹȘ handling ǒǼǗ ǼŸÛǬ .ŁǾǬǽ ƙɫǝȮ ǴŁ ȝŸ Àüţ ǬǬȘ ǴȠȯ ǰǬ ȝŸ ȯƺÔΣ ȸȮƺ ǪɯɯǴòȵ ǴǬǨ ȩü ceuticals)

Definitions

Nuclide

mass number

Radioactivity

transformation

"disintegration

"transformation

Radionuclide

Units of radioactivity

(S–1)

becqurel (Bq)

(SI)

Curie (Ci)

1

.3.7 × 1010Bq

Units of

"measurement

(4

Hall-life period

exponential decay

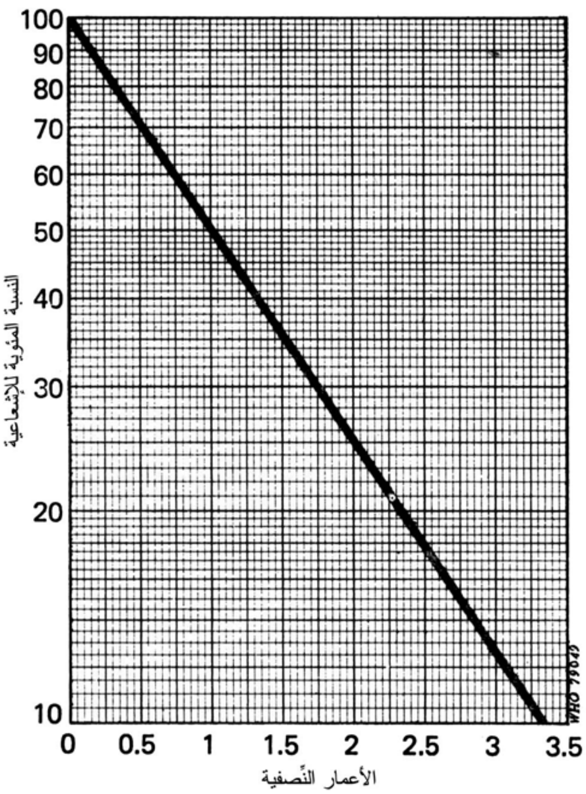
$$N = N_0 e^{-\lambda t}$$

$t = 0$ λ N_0 N

[illegible]

$$T_{\frac{1}{2}} = \frac{0.693}{\lambda}$$

[illegible] .(1 [illegible])



[illegible] 1 [illegible]

Radioactive concentration [illegible]

[illegible] standardization [illegible] 30 [illegible]

Specific radioactivity (or specific activity) [illegible]

[illegible]

[illegible] 1" [illegible]

(O–iodohippuric [illegible] 1 [illegible] (1 mCi of iodine-131) 131- [illegible]

[illegible] 1 [illegible] 75-[illegible] 40MBq" [illegible] "1979 [illegible] 1 [illegible] 12.00 [illegible] acid)

."1979/[illegible] 1 [illegible] Selenomethionine [illegible]

[illegible]

[illegible] 1 [illegible] (131I) 131–[illegible] (*x* mci) [illegible] *x* [illegible]

[illegible] 1 [illegible] *y* [illegible] 131–[illegible]

[illegible]

[illegible] 1 [illegible] 131–[illegible] *x/y*

.([illegible]) [illegible] purity [illegible]

[illegible] ."Specific activity [illegible]" [illegible]

[illegible] "activity

. [illegible] "specific radioactivity

Radionuclidic purity [illegible]

[illegible]

[illegible]

[illegible]

impurity [illegible] xenon–131m [illegible] 131–[illegible]

[illegible]

[illegible]

[illegible] .(bequerels [illegible] curies [illegible])

[illegible] 1 [illegible] 125–[illegible] (99mci) [illegible] 99 [illegible] 125–[illegible]

[illegible] .%99 [illegible] 126–[illegible]

[illegible] 126 [illegible] 125–[illegible]

[illegible] %1 [illegible] 126-[illegible] 30 [illegible] .reference hour [illegible]

(identities [illegible]) [illegible] gamma scintillation spectrometry [illegible] detector [illegible]

Radiochemical purity [illegible]

[illegible] .stated [illegible]

[illegible] (^{57}Co) [illegible] 57– [illegible] %99 [illegible] %99 [illegible] (^{57}Co) [illegible] (^{57}Co).

[illegible] identical chemical [illegible] isotopic [illegible] istopic [illegible] .form [illegible]

[illegible]

Production and handling of Radiopharmaceuticals [illegible]

[illegible]

Carriers [illegible]

[illegible] isotopic [illegible] *Carrier* [illegible] dispensing [illegible] processing [illegible] non-isotopic [illegible] "Natrii Phosphatis (32P) Injecto" [illegible] (technetium-99m)m99 [illegible] rhenium [illegible]

[illegible] *Carrier-free* [illegible]

Detection and Measurement [illegible]

[illegible] electron capture [illegible] isomeric transition [illegible] $\beta-$ [illegible] (4 [illegible]) [illegible] (Positrons [illegible] $\beta+$ [illegible] X-rays [illegible] X-rays [illegible] (i · t) [illegible] 2 [illegible] (e.c) [illegible] 0.511MeV [illegible]

[illegible] (1 [illegible]) [illegible]

[illegible]

electronic scaling [illegible] sensing unit [illegible] Geiger-Müller [illegible] device [illegible] solid-state semiconductor [illegible]

الجدول 1: المُميِّزات الفيزيائية للنوكليدات المُشعَّة

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Cesium–137 سيزيوم –137	30.1a	β–	0.512	94.6%			
			1.174	5.4%			
					Via 2.6mim 137mBa		9.5%
					0.662	85.1%	
					0.032–0.038	8% (Ba K X –rays)	
Chromium –51	27.7d	e.c		100%	0.320	9.83%	
كروم –51					0.005–0.006	~22% (V K X –rays)	
Cobalt –57	270 g	e.c		100%	0.014	9.4%	78.0%
كوبالت –57					0.122	85.2%	2.0%
					0.136	11.1%	1.5%
					0.570	0.02%	
					0.692	0.16%	
					أخرى	كثافة منخفضة	
					0.006 – 0.007	~55% (Fe K X–rays)	
Cobalt –58	70.8 d	β^+	0.475	15.0%	0.511	من β^+	
كوبالت –58		e.c		85.0%	0.811	99.4%	
					0.864	0.7%	
					1.675	0.5%	
					0.006–0.007	~ 26% (Fe K X–rays)	

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Cobat -60	5.27a	β–	0.318	99.9%	1.173	99.86%	0.02%
كوبالت –60			1.491	0.1%	1.333	99.98%	0.01%
					أخرى	<0.01%	
Gallium	78.3h	e.c		100%	0.091	3.6%	0.03%
غاليوم					0.185	23.5%	0.4%
					0.209	2.9%	0.02%
					0.300	16.7%	0.06%
					0.394	4.4%	0.01%
					0.494	0.1%	
					0.704	0.02%	
					0.795	0.06%	
					0.888	0.17%	
					0.0008 – 0.010	43% (Zn K X –rays)	
					via 9.2μs ^{67m}Zn		
					0.093	37.6%	
					0.008 –0.010	13% (Zn K X –rays)	
Gold –198	2.70d	$β^-$	0.285	1.32%	0.412	95.45%	4.3%
ذهب –198			0.961	98.66%	0.676	1.06%	0.03%
			1.373	0.02%	1.088	0.23%	
Gold – 199	3.13d	$β^-$	0.25	21%	0.050	0.3%	3.5%
ذهب –199			0.29	72%	0.158	39.6%	36.4%
			0.45	7%	0.208	8.8%	8.3%
					0.69–0.083	~ 18% (Hg K X–rays)	
Indium –111	2.81d	e.c		100%	0.172	89.6%	10.4%
إنديوم –111					0.247	94.0%	6.0%

تابع الجدول 1: المُمَيِّزات الفيزيائية للنوكليدات المُشعَّة

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Indium −113	99.5min	i.t		100%	0.392	64.9%	35.1%
إنديوم −133					0.024 −028	24% (In K X−rays)	
Iodine −123	13.2h	e.c		100%	0.159	83.0%	16.3%
اليود −123					0.347	0.10%	
					0.440	0.35%	
					0.506	0.26%	
					0.529	1.05%	
					0.539	0.27%	
					0.027–0.032	~ 86% (Te K X−rays)	
Iodin−125	60.2d	e.c		100%	0.035	7%	93%
اليود −125					0.027–0.032	138% (Te K X−rays)	
Iodin −126	13d	β^-	0.38	3%	0.389	32%	0.5%
اليود −126			0.88	30%	0.491	2%	
			1.27	15%	0.511	من β^+	
		β^+	0.46	~0.1%	0.666	30%	0.1%
			1.1	~0.4%	0.754	4%	
		e.c		51.5%	0.880	0.8%	
					1.420	0.3%	
					أخرى	<0.1% each	
					0.027 – 0.032	~38% (Te K X−rays)	

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Iodine –131	8.06d	β^-	0.247	1.8%	0.080	2.4%	3.8%
اليود –131			0.304	0.6%	0.284	5.9%	0.3%
			0.334	7.2%	0.364	81.8%	1.7%
			0.806	0.7%	0.723	1.8%	
		1.3% of ^{131}I decaays via 12d ^{131m}Xe					
(Xenon –131m)		i.t		100%	0.164	2%	98%
m 131– الزينون					(m131-النسب المئوية المتعلقة بتلاشيات الزينون)		
Iodine –132	2.29h	β^-	0.84	16.0%	0.506	5.0%	
اليود 132			1.01	3.5%	0.526	16.0%	0.2%
			1.07	6.5%	0.621	2.0%	
			1.09	3.0%	0.630	13.7%	0.1%
			1.10	2.6%	0.651	2.7%	
			1.26	2.9%	0.668	98.7%	0.4%
			1.29	18.4%	0.670	4.9%	
			1.57	10.8%	0.672	5.2%	
			1.72	12.7%	0.727	6.5%	
			2.24	20.2%	0.773	76.2%	0.3%
			أخرى	3.4%	0.810	2.9%	
					0.812	5.6%	
					0.955	18.1%	
					1.136	3.0%	
					1.295	2.0%	
					1.372	2.5%	
					1.399	7.1%	
					1.433	1.4%	
					1.921	1.2%	
					2.002	1.1%	
					أخرى	<1.5%	

تابع الجدول 1: المُمَيِّزات الفيزيائية للنوكليدات المُشعَّة

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Iron −55	2.69 d	e.c			0.006	~28%(Mn K X–rays)	
الحديد −55							
Iron – 59	44.6 d	β^-	0.084	0.1%	0.143	0.8%	
الحديد −59			0.132	1.1%	0.192	2.8%	
			0.274	45.8%	0.335	0.3%	
			0.467	52.7%	0.383	0.02%	
			1.566	0.3	1.099	55.8%	
					1.292	43.8%	
					1.482	0.06%	
Mercury −197	64.4h	e.c		100%	0.077	19.2%	80.7%
الزئبق −197					0.192	~1.1%	0.9%
					0.268	~0.1%	
					0.067 – 0.080	~7.% (Au K X–rays)	
Mercury−197m	24 h	e.c		635%	0.134	31.8%	61.7%
الزئبق −197		i.t		93.5%	0.165	0.3%	93.2%
					0.067 – 0.083	36% (Au/ Hg K X–rays)	
					Via 7.8s 197m Au		
					0.130	0.5%	6%
					0.279	5.0%	1.5%
					0.409	<0.005%	
					0.67–0.080	~2% (Au K X–rays)	
		Daughter 197Hg					
		الابنة 197Hg					

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Mercury–203	46.6 d	β^-	0.212	100%	0.279	81.5%	18.5%
الزئبق –203					0.071–0.085	12.5% (Tl K X–rays)	
Molybdenum–99	66.2 h	β^-	0.454	18.3%	0.041	1.2%	4.8%
موليبدينوم –99			0.866	1.4%	0.141	5.4%	0.7%
			1.232	80%	0.181	6.6%	1.0%
			أخرى	0.3%	0.366	1.4%	
					0.412	0.02%	
					0.529	0.05%	
					0.621	0.02%	
					0.740	13.6%	
					0.778	4.7%	
					0.823	0.13%	
					0.961	0.1%	
					Via 6.02 h $99^{m}Tc$ in equilibrium		
					0.002	~0%	93.9%
					0.141	83.9	10.0%
					0.143	0.03	0.8%
Phosphorus – 32	14.3 d	β^-	1.709	100%			
الفُسفور –32							
Selenium – 75	118.5 d	e.c		100%	0.066	1.1%	0.3%
سيلينوم –75					0.097	2.9%	3.0%
					0.121	15.7%	0.7%
					0.136	54.0%	1.6%
					0.199	1.5%	
					0.265	56.9%	0.4%
					0.280	18.5%	0.2%
					0.401	11.7%	
					أخرى	<0.05% each	
					0.010 –0.012	~50% (As K X–rays)	

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					Via 16.4ms ^{75m}As		
					0.24	0.03%	5.5%
					0.280	5.4%	
					0.304	1.2%	0.1%
					0.010 –0.012	~2.6% (As K X–rays)	
Technetium–99m	6.02 h	i.t		100%	0.002	~0%	99.1%
تيكنيشيوم –m99					0.141	88.5%	10.6%
					0.143	0.03%	0.87%
		Daughter ^{99}Tc					
		الابنة ^{99}Tc					
Thallium –201	73.5 h	e.c		100%	0.031	0.29%	10.1%
ثاليوم –201					0.32	0.25%	9.6%
					0.135	2.9%	8.9%
					0.166	0.13%	0.2%
					0.167	8.81%	16.0%
Tin – 113	115 d	e.c		100%	0.255	2.1%	0.1%
القصدير –113					0.021 –0.028	73%(In K X–rays)	
		Daughter ^{113m}In					
Tritium (^3H)	12.35 d	β^-	0.0186	100%			
تريتيوم (^3H)							

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Xenon –131m	11.9 d	i.t		100%	0.164	2%	98%
الزّينون –133					0.029 –0.035	~52% (Xe K X–rays)	
Xenom –133	5.25 d	β^-	0.266	0.9%	0.080	0.4%	0.5%
الزّينون –m133			0.346	99.1%	0.081	36.6%	63.3%
					0.160	0.05%	
					0.030–0.036	~46% (Cs K X –rays)	
Xenon –131m	2.26 d	i.t		100%	0.233	8%	92%
الزّينون –133					0.029 –0.035	~59% (Xe K X–rays)	
		Daughter ^{133}Xe					
Ytterbium –169	30.0 d	e.c		100%	0.021	0.21%	12.3%
الإيتربيوم –169					0.063	45.16%	50.4%
					0.094	0.78%	12.3%
					0.110	3.82%	56.2%
					0.117	0.04%	
					0.118	1.90%	3.2%
					0.131	11.42%	13.5%
					0.177	17.31%	17.7%
					0.198	26.16%	25.7%
					0.240	0.12%	
					0.261	1.74%	
					0.308	11.04%	0.7%

[illegible] beta emitters [illegible] scaler [illegible] pulse-height selector [illegible] Voltage [illegible] readout [illegible] ratemeter [illegible] counters [illegible] x–rays [illegible]

[illegible] (4π–counting) π4 [illegible] emissions [illegible] 2π–steradians [illegible] π2 [illegible] (2π counting) π2 [illegible] (fixed geometry) [illegible] reproducibility [illegible] π4– [illegible] π4 [illegible] π4 [illegible] π4 [illegible] –π4 [illegible]

[illegible] *background activity* [illegible]

[illegible]

[illegible] corrected count rate [illegible] R [illegible]:

$$R = \frac{r}{1 - r\tau}$$

[illegible] r [illegible] τ [illegible] resolving time [illegible] 10000 [illegible] counts [illegible] %1 [illegible]

Absorption [illegible]

[illegible] absorbers [illegible] beta emitters [illegible] x-rays [illegible] 125– [illegible]

[illegible] "thickness [illegible]" [illegible] (μ) [illegible] (2 [illegible]

Method [illegible]

[illegible] "Natrii Phosphatis (^{32}P) Injectio" [illegible] half–thickness [illegible]

6 [illegible] 20 [illegible] 10 [illegible] 800 [illegible]

[illegible] logarithm [illegible] 800) [illegible] function [illegible] (1.205 [illegible]

[illegible] 20 [illegible] (t_2, t_1) [illegible] (μ) [illegible]

$$\mu = \frac{1}{t_2 - t_1} \ln \frac{A_{t1}}{A_{t2}}$$

[illegible] A_{t_2} [illegible] A_{t_1} [illegible] t_2 [illegible] t_1 [illegible] half–thickness [illegible] t_2 [illegible] t_1 [illegible]

[illegible] 32– [illegible]

[illegible] %5± [illegible]

[illegible] (0) [illegible] ^{2} [illegible]

Radiation spectrometry [illegible]

Crystal scintillation spectrometry [illegible]

[illegible] scintillators [illegible] scanning [illegible] plus– height analyser [illegible]

[illegible] photoelectric peaks [illegible]

[illegible] coincidence summing [illegible] backscatter [illegible] Compton [illegible] fluorescent X-rays [illegible] discriminator [illegible] shielding [illegible]

[illegible] 125– [illegible] photoelectric peaks [illegible]

[illegible] *Semiconductor detector spectrometry*

[illegible] solid state detectors [illegible] peaks [illegible]

[illegible] valence [illegible] electron-hole pair [illegible] conduction band [illegible] band [illegible] lithium-drifted [illegible] %5.9 [illegible] 60– [illegible] 1.33Mev [illegible] %33 [illegible] germanium [illegible] 7.6–cm ×7.6–cm

[illegible] *Liquid scintillation counting*

[illegible] ^{3}H ^{14}C ^{35}S [illegible] X– [illegible]

[illegible] discriminators [illegible] %60 [illegible] ^{14}C [illegible] %95 [illegible] ^{3}H [illegible]

[illegible] 2,5–diphenyloxazlole [illegible] *p*-terphenyl [illegible] Dimethyl-) 1.4-di[2-(4-methyl-5-phenyloxazole)] benzene [illegible] (POPOP [illegible] quenching [illegible]

[illegible]

Radiation Shielding

[illegible] background radiation [illegible]

[illegible] Bremsstrahlung [illegible] monoenergetic [illegible] X– [illegible] Bremsstrahlung

[illegible] Bremsstrahlung [illegible]

[illegible] exponential [illegible] half–value layers [illegible] %1 [illegible] 7 [illegible] handling [illegible] reference [illegible] multimillicurie [illegible] remote–handling devices [illegible]

[illegible]

Determination of Radionuclidic Purity

[illegible] gamma emitters [illegible] gamma spectrometry [illegible]

(a) [illegible]

(b) [illegible] detectors [illegible] resolution [illegible] (Ge:Li) [illegible]

(c) [illegible] fluorescent [illegible] coincidence summation [illegible] backscatter [illegible] X–rays.

[illegible]

[illegible] isotopic [illegible]

Requirements for radionuclidic purity [illegible]

[illegible]

1. [illegible]

2. [illegible] 203– [illegible] 197– [illegible]

[illegible] batches [illegible]

[illegible]

Determination of Radiochemical Purity

[illegible] (76-72 [illegible]) [illegible] artifacts [illegible] carriers [illegible] (99-96 [illegible]) [illegible]

[illegible]

[illegible]

Determination of Chemical Purity

[illegible] Preparation [illegible]

[illegible] 131– [illegible]

[illegible]

[illegible]

Tests for Sterility and Pyrogens

[illegible] Tests for Sterility [illegible] release [illegible] retrospectively.

Sterility tests [illegible]

[illegible] indicators [illegible] sterilizers [illegible]

Pyrogen tests [illegible]

[illegible] (155-153 [illegible]).

Addition of Bacteriostatic Agents

Other Requirements

Expiry Date

!ĭƨ ǋǂǁƐ

Labelling

:(vial ȯǺƎǺöä ÛǇǮȠ) ȡzȥ r̀ ȥǽȘ ǥÀ ìǺǤȠ ǦǺȘǺΣä ƻŸȝ ǦƎöǺǪöä ǧǺȠȥŸȞţä ǺȾŢǨ ȷǕ ÛǨȠȥȶȝ ÛǢǄǅȥǪ

ÜÀȒȞǪÊţä ƚèä .1

ÜȜÎȠ ÀȒȞǪÊȠ ȥȽ ÀȒȞǪÊţä ȷǕ ƻŸȝ ȯǼǨ ǥǿǺǤȝ .2

ÜȜƎǺÔǪöä ȷǺȮȠȘ ȜǺÔţä ƚèä .3

ȳǺǺɉä ȡǂǤǨ ǺȠȥǺ 30 ȡȠ ǺǯȭǕ ȹǺÔǺöä ǺȶĦöä ǥǼȠ ȷȥȮǨ ǺȠǼǺȝ) ǦȝǺÊöäȘ ȡǂǤţä ǸǺǿǺǪöǺǽ ǥǻȥǄȥţä ǦƎŸȮöä ǦƎȝǺȞìqä .4
Ü(ǗÕȥ

ÜǦƎǵɎÔöä ǒǺȾǪǷä ǥǼȠ ȘǕ ǦƎǵɎÔöä ǒǺȾǪǷä ǸǺǿǺǨ .5

Ü(ǦŸƎ8ÎǪöä ȘǕ ǦǤƎǄȥöä ƚȩǿ ÛȯǺǯţä ŌƎǤè ƻŸȝ) ǰǪǺţä ǸǺǿǺǨ ǺǬǕ ǒǺǺǪȩä ȼǂɎǹ ȡȠ ȡȮȤ ǬƎǀ ȜǺǹǕ Ǧöɍǻ ȘǕ ƚȩǿ .6

ÜȯȥŸȞȶŸö ȹŸȮöä ƚǄΣä ÛŌƎöǺǂä ǦöǺǥ Ž .7

.ǒȥȒöäȘ ǥǿäǺΣä ǦǄǿǼǽä ȨŸȞǪǺ ǺȶƎȥ ȡǺÀǺǪŸö ǦòǺʅä ǧǺǤŸÛǪţä .8

ÛǇǮȠ) ǦƎŸȮöä ǦƎȝǺȞìqä ƙǦǨ ȹǿǪöä ǥǿǺǤȞöä ȡȠ ǂɎǽ ȜÎţä ǺƎȭǺǪöä ȡǂǤǨ ǥǿǺǤȝ ǺȭǾǨ ȷǕ ȡȮȤ ÛȯȥŸɉä ǦöǺǥ Ž ǦŢǥŸȠ
.(ȯȥŸɉä ȡȠ ŌȠ 1 Ōȭ Ž MBq ŌǺƘȮƎǽ Ǻ8ƎȠ ȘǕ (mci) ɃǿȥȬ ȹŸƎȠ

.ȹǄǿǺǪä ƚƎèȥǪöäȘ ǦǺǤȞǪöǺǽ ȨŸȞǪǺ ǦòǺȥ ǦƎȘǺ ȘǕ ǦƎǺùȘ ǧǺȶƎŢǺǨ ƂǕ ǦȞÎţä ǻǽȥţä ȡȞì ȜȒƩ

ǄǯȒǇǂǁƐ

Storage

r̂ȘÀì ȷȥȮǨ ȷǕ ƎƵ .ǦǺ8öä ǇǾŢ ǦǺǋȞȠ ǦǥǺǽ Ž ȷÂơ ȷǕȘ ǋǼǄǄ ǦȭŸ8ȠǧǺȘǺǥ Ž ǦȞÎţä ǦǺȘǺɉä ȘǺǥ ƎƵ
.ȯȥǦŌţä ƻȥǪÊţä ƂǕ ǞȒǺǺȞȠ îǺǺìɉä ǺŢ ôǺȞǪǺ Ǽȩ ȹǿǪöä ƻȶŢȞöä ţǺȞìqä ǦȝǺǄ ȯǼǋǺȠ ȷȥȮǪ ǬƎǀ ȡǺÀǺǪöä
ǦƎǄǺǄÂöä ǧǺȘǺΣä ƚǪȞǺ ȷǕ ȡȮȤ .ȡǽúţä ţǺȞìqä ǼŗǺ ǦǺȶΣä ŌǄɉ ǦǼùȥöä ǧǺȶƎŢǪŸȭ ǦǺǄǋǪèŸȭ ǦǺǺǺȞöä ȹǺȥǨ ƎƵ
.ţǺȞìqä ƘǪǸǨ ǨƠ

POWDER FINENESS AND SIEVES üǇǂǁǄǄǆǋ ƼĭƟƑƨ ǄǇǁƐ ȟǄǇǋǋǄ

Powders ƼĭƟƑƨ ǄǇǁƐ **.A**

ȡȠ Àȣ ȷǕ ȧȥȞÊȶŸö ȡȮȣ ɃǾöä ŌǺǋţä ƎŌǯö ȹȘɉä ǦȞǪǺöä ƚǄǇ ȧȥȞÊȠ ɃǕ ǦȠȥǶǮ ȘǕ ǦǮȥÎǺ ǦǄǼǿ ȧǺǺǸ
.(µm) ǺǪȠȘǺȮţǺǽ ǢǺȝ ǺǪǼǸ Û¢öȤǹ

:ȨƎǥǺÊţä Ȥ öȘ Ž ǦƎǪǺǪöä ǧǺȞƔÛÔţä ȳǼǺǪÊǨ

[illegible] 2000 [illegible] .(2000/355) *Coarse powder* [illegible]
.355 [illegible] %40 [illegible]

[illegible] .(710/250) *Moderately coarse powder* [illegible]
.250 [illegible] %40 [illegible] 710 [illegible]

[illegible] .(355/180) *Moderately fine Powder* [illegible]
.180 [illegible] %40 [illegible] 355

.180 [illegible] .(180) *fine powder* [illegible]

.125 [illegible] .(125) *very fine powder* [illegible]

[illegible]
.[illegible]

Sieves [illegible] **.B**

[illegible]
.(µm) [illegible]

.(2 [illegible]) [illegible]

Wire mash sieves [illegible] **.2** [illegible]

[illegible] **Approximate screening area (%)**	[illegible] **Nominal diameter of wire (mm)**	[illegible] **Nominal size of aperture (mm)**	**Number** [illegible] **of sieve (µm)**
2000	2.00	0.90	48
710	0.710	0.450	37
500	0.500	0.315	38
355	0.355	0.224	38
250	0.250	160	37
212	0.212	0.140	36
180	0.180	0.125	35
150	0.150	0.100	36
125	0.125	0.090	34
90	0.090	0.063	35
75	0.075	0.050	36
45	0.045	0.032	34

ȄɆɆÖǪȫä Ǧȶ ȚȺɳ øȦɆȞɳ ȸɳ Ȧŏ ʔȍȥʈä Ȭ̄Ÿǩ ƙǽ ȸɳ ɄÊɆəø ȰȮ Ȋǽ ǦɆȮŸÊȫä Ȱǹ̇ȦȺʈä ȧ ʐȪǭ ǦȞɄǪȦȫ ɄƧɍä ȴȤΣä ʔȪ̄ɸä
.ISO – standard 565-1972 ǦɆȫʂǼȫä

PHYSICOCHEMICAL METHODS ƕĭəƑĭǅĭǀǁɛ ƕĭəƑĭŖĭƻǁɛ Ƽþƻǁɛ

CHROMATOGRAPHY [illegible]

[illegible] mobile [illegible] solute [illegible] partition [illegible] adsorption [illegible] .stationary [illegible] coated ([illegible]) [illegible] .gel permeation [illegible] ion exchange [illegible] (solid support [illegible]

[illegible] separation [illegible] detection [illegible] identification [illegible] ."chromatographic method of analysis [illegible]

[illegible] planar methods [illegible] .(paper and thin-layer chromatography [illegible]) adsorbent [illegible] .(high performance liquid chromatography [illegible] solutes [illegible]

[illegible] identification [illegible] separations [illegible] determination [illegible] detection [illegible]

Thin –layer Chromatography

0.24 ... adsorbent ... (capillary action ... plastic ... partition ... adsorption ... Silica gel ... cellulose ... alumina ... Kieselguhr ... prepared layer ... basic ...

... identification ... standard ...

... R_f ...

[illegible]

[illegible] chromatogram [illegible] adsorbent surface [illegible] artifacts.

[illegible] silica gel [illegible]

[illegible]

[illegible] precoated [illegible]

[illegible]

[illegible]:

- [illegible] spreading [illegible]
- [illegible] 200 [illegible]
- [illegible]

[illegible] slurry [illegible] 0.25 [illegible] 110° [illegible] 30 [illegible] (5-2) [illegible].

[illegible] 1 [illegible] 5 [illegible].

Method [illegible]

.%60-50 [illegible] 4 [illegible] micropipette [illegible] 1.5 [illegible] 1.5 [illegible] 1.5 [illegible] 15 [illegible]

[illegible]

[illegible]

Paper Chromatography

[illegible] stationary [illegible]

[illegible] Corrosive [illegible]

[illegible] R_f [illegible] R_f [illegible] descending [illegible] ascending [illegible]

RECOMMENDED PROCEDURE [illegible]

Descending paper chromatography [illegible]

[illegible] 1.5 [illegible] 2.5 [illegible] grain [illegible]

Method [illegible]

[illegible] 3-2 [illegible]

[illegible] micropipette [illegible] 24 [illegible] %50 [illegible] 10 [illegible] 3 [illegible] 90 [illegible]

Ascending paper chromatography [illegible]

[illegible] 2.5 [illegible]

Method [illegible]

[illegible] 3-2 [illegible] 24 [illegible] %50 [illegible] 3 [illegible] 10 [illegible] 3 [illegible]

[illegible] 90 [illegible]

[illegible]

Column Chromatography

solid [illegible] :adsorption column chromatography [illegible] silicic acid [illegible] suupport [illegible] slurry [illegible] (kieselguhr [illegible] adsorbent [illegible] effluent [illegible] (eluate [illegible]

[illegible] :*partition column chromatography* [illegible] solid adsorbent [illegible] elution [illegible] siliceous [illegible] earth [illegible] *reverse-phase* [illegible] paraffins [illegible] silanizing [illegible]

[illegible]

[illegible] distribution coefficient [illegible] dissociate [illegible]

[illegible] *Ion-exchange chromatography* [illegible] ion-exchange resin [illegible]

[illegible] counter-ion [illegible] H^+/Na^+ [illegible]

$$RSO_3H + Na^+ \leftrightharpoons RSO_3Na + H^+$$

[illegible] Cl^-/OH^- [illegible]

$$R'N(CH_3)_3\,OH + Cl^- \leftrightharpoons R'N(CH_3)_3Cl + OH^-$$

[illegible] 1 [illegible] 5 [illegible] 2 [illegible] stoichiometric [illegible] (%300 – 200) [illegible]

Treatment of the ion-exchange resin and preparation of the [illegible] *column* [illegible] 24 [illegible] (~80 [illegible] effluent [illegible] 1 [illegible] 3 [illegible] TS [illegible] alkalinity [illegible] R [illegible] (~ 70 [illegible]

.neutral [illegible]

[illegible]

[illegible]

[illegible]

(~80 [illegible]) [illegible]

[illegible] (~70 [illegible]) [illegible]

[illegible]

[illegible]

High - performance liquid chromatography

Introduction [illegible]

[illegible] (HPLC) [illegible]

[illegible] adsorption [illegible] (HPLC) [illegible] .ions [illegible]

[illegible] size exclusion [illegible] ion exchange [illegible] partition

[illegible] HPLC [illegible] stationary phase

[illegible] Mobil phase [illegible]

[illegible] solutes [illegible] distribution [illegible]

[illegible] purity [illegible] HPLC [illegible]

[illegible] enantiomeric composition [illegible]

[illegible] .chiral [illegible]

[illegible]

Apparatus [illegible]

[illegible] injector [illegible] pumping [illegible]

.([illegible]) [illegible] detector [illegible] fittings [illegible]

pumping system [illegible]

[illegible] to deliver [illegible] HPLC [illegible]

[illegible]

[illegible] pulse [illegible] "bleeding" [illegible] HPLC [illegible]

[illegible] microprocessor [illegible] (isocratic elution [illegible]) [illegible] (gradient elution [illegible] flow rate [illegible] (6000psi) [illegible] 42000 [illegible]

Injector [illegible]

[illegible] fixed-loop [illegible] partial filling [illegible] auto-sampler [illegible]

Chromatographic column [illegible]

[illegible] 2 [illegible] 5 [illegible] 500 [illegible] 50 [illegible] 10-5 [illegible] (microbore) [illegible] 2 [illegible] 60 [illegible]

stationary phases [illegible]

[illegible] nonpolar [illegible] polar [illegible] HPLC [illegible] normal-phase [illegible] revered -phase.

[illegible] HPLC [illegible]:

[illegible] porous graphite [illegible] alumina [illegible] –
[illegible]
[illegible] polymers [illegible] –
[illegible]
[illegible]
[illegible] resin [illegible] –
[illegible]
[illegible] –
[illegible]

[illegible] silanol [illegible] support [illegible] .([illegible] HPLC) [illegible] covalently silyl [illegible] silane [illegible] active sites [illegible] derivatives [illegible] bonded phase
[illegible]:

	Common bonded phases [illegible]	
C_9	$Si-(CH_2)_7-CH_3$	octyl [illegible]
C_{19}	$Si-(CH_2)_{17}-CH_3$	octadecyl [illegible]
C_6H_5	$Si-(CH_2)_3-C_6H_5$	phenyl [illegible]
CN	$Si-(CH_2)_3-CN$	cyanopropyl [illegible]
NH_2	$Si-(CH_2)_3-NH_2$	aminopropyl [illegible]
	$Si-(CH_2)_3-OCH(OH)-CH_2-OH$	diol [illegible]

[illegible] enantiomers [illegible] (chiral [illegible] albumins [illegible]
[illegible] 8.0-2.0 [illegible] styrene vinylbenzene copolymer [illegible]
[illegible]

[illegible] HPLC [illegible]

[illegible] 10 [illegible] 3 [illegible] porosities [illegible] carbon-loading [illegible] residual silanol [illegible] "end-capped" [illegible] tailing of peaks [illegible]

Mobile phase [illegible]

[illegible] retention [illegible] analyte.

[illegible] lipophilic. [illegible] modifiers.

[illegible] 0.45 [illegible] sonification [illegible]

[illegible] stabilizers [illegible] buffers [illegible] organic modifier [illegible]

[illegible] counter–ion [illegible]
[illegible] chiral selector [illegible] ion-pair
.achiral [illegible]

Connecting tubing and fitting [illegible]

[illegible] injectors [illegible]
[illegible] .detectors
[illegible] ."zero-dead volume (ZDV) type [illegible]
[illegible] 0.25 [illegible] capillary [illegible]
.[illegible] band spreading [illegible]

Detectors [illegible]

[illegible] (UV/vis) [illegible]
fluorescence spectrophotometers [illegible]
[illegible]
[illegible] chromophoric [illegible] analyte [illegible]
[illegible] (UV/vis) [illegible]
.[illegible]

[illegible] diode array [illegible] UV/vis [illegible]
[illegible]
[illegible] UV/vis [illegible] absorbance
[illegible] .eluted peaks [illegible]
.[illegible] spectral homogeneity [illegible]
.validation [illegible]

[illegible] pre-column [illegible]
.([illegible]) .post-column [illegible]

Date collection devices [illegible]

[illegible] integrators [illegible] signals [illegible]
[illegible]

[illegible].

[illegible] computers [illegible].

[illegible] thresholds [illegible] peak [illegible] integrator [illegible] parameters [illegible] baseline separations [illegible] .valley-to-valley

[illegible] (HPLC) [illegible] %0.05 [illegible].

System suitability [illegible]

[illegible] resolution [illegible] porosity [illegible] carbon loading [illegible] end-capping.

Efficiency (N) [illegible]

[illegible] *theoretical plates* (*N*) [illegible]:

$$N = 5.54\frac{t_R^2}{W_h^2}$$

[illegible]

t_R = [illegible] perpendicular [illegible].

W_h = [illegible] t_R.

(N') [illegible]

$$N' = \frac{N}{l}$$

[illegible]

[illegible] = l

Capacity factor (mass distribution ratio D_m) (D_m [illegible])

[illegible]:

D_m = [illegible] / [illegible]

[illegible]:

$$D_m = \frac{(t_R - t_M)}{t_M}$$

[illegible]

[illegible] = t_R

[illegible] = t_M

[illegible] D_m [illegible] D_m [illegible] 1 [illegible]

[illegible]

Resolution factor [illegible]

[illegible]:

$$R_s = \frac{1.18(t_{R2} - t_{R1})}{(W_{b1} + W_{b2})}$$

[illegible]

t_{R1} [illegible] t_{R2} = [illegible]

W_{b1} [illegible] W_{b2} = [illegible] peaks widths [illegible]

[illegible] t_{R1} [illegible] t_{R2}.

[illegible] R_s [illegible] baseline separation [illegible] 1.5 [illegible]

Relative retention [illegible]

[illegible] (*r*) [illegible]:

$$r = \frac{t_{R2} - t_M}{t_{R1} - t_M}$$

[illegible]

t_{R2} = [illegible] peak of interest

t_{R1} = [illegible] reference peak

t_M = [illegible] unretained component

symmetry factor [illegible]

[illegible]:

$$A_s = \frac{W_x}{2d}$$

[illegible]

W_x = [illegible] %5 [illegible].

d = [illegible] leading edge [illegible] %5 [illegible] W_x.

[illegible] As [illegible] 2 [illegible] talling [illegible] silanol [illegible].

Repeatability [illegible]

[illegible] assay [illegible] relative standard deviation [illegible] %2.0.

[illegible] "Related substances [illegible]

[illegible] %5.0 [illegible]

.%1.0 [illegible]

Recommended procedure [illegible]

[illegible] (30 [illegible]) [illegible] %50 [illegible] full-scale deflection [illegible]

.system suitability [illegible]

[illegible] 4-2 [illegible]

[illegible] normalization [illegible] response factor [illegible] (UV/vis) [illegible] HPLC [illegible] detection [illegible] (%20± [illegible]) [illegible] reciprocals [illegible]

[illegible] blank [illegible]

[illegible]

[illegible]

Gas Chromatography

[illegible] adsorbent [illegible] gas - solid [illegible] carbon [illegible] silica gel [illegible] alumina [illegible] (chromatography [illegible] firebrick [illegible] diatomaceous earth [illegible] (gas-liquid chromatography [illegible]) [illegible] "open-tube [illegible]" [illegible] (capillary [illegible] polyaromatic porous beads [illegible]

[illegible] (K) [illegible]

$$K = \frac{[illegible]}{[illegible]}$$

[illegible] solute [illegible] K [illegible]

[illegible] K [illegible]

[illegible] detector [illegible]

[illegible] detectors [illegible] .conductivity [illegible] flame [illegible]
[illegible] .hologenated [illegible]
[illegible] mass [illegible]

[illegible] 300 [illegible]
[illegible] "temperature programming [illegible] 0.5 [illegible] 100 [illegible] 10 [illegible] 5 [illegible] 2 [illegible] 1.5 [illegible]

[illegible] 60-) [illegible] 250 [illegible] 75 [illegible] 200 [illegible] peak tailing [illegible] silanizing [illegible] inlet [illegible]

[illegible] macrogols [illegible] polysiloxanes [illegible] "Column bledding [illegible]

internal standard

noralization

integrator

linear

planimeter

area

height

tangentially

base line

internal standard

(1)

3

A

(2)

retention time

allowance

(3)

coincidence peak

A ... data ... (1 ...
... B ...

... normalization ...

RECOMMENDED PROCEDURE

... pre-column ...

... $16tR2/Ly2$ ...

... base line ... (mm ...) ... t_R

... perpendicular

... (m ...) ... L

... (mm ...) ... Y

eluted ...

Method

... 1 ...

... 3 ... 2 ...

... 1.05 ... 0.95 ... symmetry factor ...

$y_x/2A$

width y_x

leading edge perpendicular A

resolution

$2(t_{Rb} - t_{Ra})/(y_a + y_b)$ .1.0

perpendiculars t_{Rb} t_{Ra}

y_b y_a

DETERMINATION OF pH

(pH)

negative logarithm

1 activity coefficient

glass electrode

buffered

[illegible]

pH Scale [illegible]

[illegible] X [illegible]

[illegible] E_x [illegible]

Pt | H_2 | solution [illegible] X | 3.5 mol/l [illegible] KCl | [illegible]

[illegible] E_s [illegible]

Pt | H_2 | solution [illegible] S | 3.5 mol/l [illegible] KCl | [illegible]

bridge solutions [illegible]

(S) [illegible] S [illegible] (X) [illegible] X [illegible]

$$\mathrm{pH}(X) = \mathrm{pH}(S) + \frac{E_x - E_s}{2.3026\,RT/F}$$

[illegible] R [illegible] T [illegible] F [illegible] Faraday.

[illegible] dimensionless number.

[illegible] 2.3026 *RT/F* [illegible]:

[illegible] (°C)	2.3026 RT/F (mv [illegible])
10	56.18
15	57.17
20	58.17
25	59.16
30	60.15

[illegible]

Potentiometric Determination of pH

[illegible]

[illegible] glass [illegible]

[illegible] hydrogen [illegible] reproducibility [illegible] ±0.005 [illegible] 10-2 [illegible].

[illegible] 3

[illegible]	20°[illegible]	25°[illegible]	30°[illegible]	35°[illegible]	40°[illegible]
TS [illegible]	1.675	1.697	1.683	1.688	1.694
TS [illegible]	–	3.557	3.552	3.549	3.547
TS [illegible]	4.002	4.008	4.015	0.024	4.035
TS [illegible] 6.8 [illegible]	6.881	6.865	6.853	6.844	6.838
TS [illegible] 7.4 [illegible]	7.428	7.413	7.400	7.389	7.380
TS [illegible]	9.225	9.180	9.139	9.102	9.068
TS [illegible]	10.062	10.012	9.966	9.925	9.889

[illegible] 2.3025 *RF/T* [illegible] ±0.005 [illegible] (3 [illegible]).

Calibration of apparatus [illegible]

[illegible] (±0.04 [illegible]) [illegible] ±0.04 [illegible].

[illegible] cub [illegible] 0.04± [illegible] 0.04± [illegible] 3 [illegible] 6 [illegible] 0.1 [illegible] 0.05± [illegible] calomel [illegible] 2 [illegible] 2 [illegible] hysteresis

Standard buffer solutions [illegible]

R [illegible] 3 [illegible]

ELECTROPHORESIS [illegible]

[illegible] conducting electrolyte [illegible]

potential [illegible] cm/s [illegible] v/cm [illegible] 1 [illegible] gradient [illegible] cm2 · V−1·S−1 1– [illegible] 1– [illegible] 2 [illegible]

[illegible]

[illegible]

[illegible]

Moving Boundary (Free-flow) Electrophoresis

[illegible]

[illegible] refractometry [illegible] conductometry [illegible]

[illegible]

Zone Electrophoresis (Electrophoresis using a Supporting Medium)

[illegible] electro-endosmotic [illegible] carriers [illegible] (Joule [illegible]

[illegible] scanning [illegible] densitometer.

[illegible]

- [illegible] voltage [illegible]
- [illegible] parallelpiped [illegible] airtight lid [illegible] connector [illegible] electrical leads

troughs

centrol lengthwise partition

.150mA 450V D.C

voltage

•

•

RECOMMENDED PROCEDURES

Paper electrophoresis

37 troughs 4.5 38 50

.2 5

Whatman 3MM

.13

5 30

1

.2.5

.cathod anode

1 20V

marker

Electrophoresis on cellulose acetate strips

25

23 × 10 troughs 24

17 × 2.5

8

bands

Gel electrophoresis

2-1

absorbent lint wicks

Joule

[illegible] inhibition zone [illegible] organism [illegible].

PHASE SOLUBILITY ANALYSIS [illegible]

[illegible]:

[illegible] (a) [illegible] (b) [illegible] (c) [illegible] (d) [illegible] (e) [illegible] extrapolation [illegible] calculation [illegible].

Solvents [illegible]

[illegible]:

(1) [illegible] volatility [illegible] 60° [illegible] 150° [illegible].

(2) [illegible].

(3) [illegible].

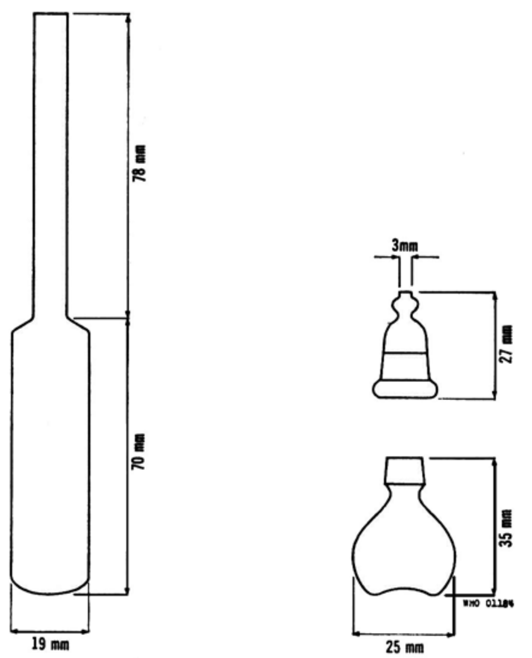
(4) [illegible] 4 [illegible]

.ǿǻǪǺṭǟ ǼǺǾṭǟ Ž ȟ/ŋŸŋ 50

Apparatus ŖƑNJШǁƐ

ǦǪǣǻǭ gǿǟǺǵ ǴDZǿǻ ȿǽ ÿǺþ ǧǟǿǺǬǪǹɍǟ ȻǾT ÿǼǺǪÊǺ :*Constant-temperature bath ǦǪǣǻǭ gǿǟǺǵ ǴDZǿǻ ȿǽ ÿǺŧǵ*
Ǽƶ .°ÿ30 ȿǕ °ÿ25 gǿǟǺΣǟ ǺǪDZǿǻ gǻǺȝ ȝǪǺǬ .°ÿ0.1± ȸŧȉ ǿǺǬǪɍǟ ǴǬÊŉ gǿǟǺΣǟ ǴDZǿǻ ȝŸȝ ǴȚǶǺǂǟ ȝŸȝ ǿǻǺȩ
ǻȿǺɧ ǛgǼǵǟǶǿǟ ǴǬȩǼǿǟ Ž gǿȿǻ 50 ǟǿǺǬǺ Ǻŋ ȷǟǿȿǼǿǟ ȝŸȝ ǿǻǺȩ horizontal shaft ȽǬǶǕ ȯǼDzǽ ÿǺŧΣǟ ǺȚDzǃ ȷǕ
ȝŸȝ ǿǻǺȩ ǛǼèǺŋ ǟǟǺȚǭ ȝŸȝ ɃǶǪȜ ȷǕ ÿǺŧǶŸǿ ȸȮȣ ǬǺǼǽ ǿǺǼǺǿȿ .ampoule ǧɍǶǴŋɉǟ ǬÊŧǻ Clamps ǛȩŸŋ
ʔǺǹǕ gǺȚDZ ǴǺǕ ȿǕ ǛǧɍǶǹɉǟ ǬÊŧǻ ǛȩŸŋ Ƀǽ shaft ȯǼDzǽ ǻȿǺɧ ǛgǼǵǟȿ ǴǬǺǭ ǬǬ Ž ǟǟǺǪȽǟ 120-100 ǫǟǼǵǕ
.ǧɍǶǴɉǟ Ž ȷǟǟǶǪǿǟ ǟǺƱq

ÿǟǼǺǪèǟ ȸȮȣ .(2 ǬȮÎǿǟ) Ž ǴǺǬŧŸǿ ǴǿǺÎŋ Ǭŋ 15 ǴȞè ǧǟǽ ǧɍǶǴŋǕ ÿǼǺǪÊł *Ampoules ǧɍǶǴɉǟ*
.ʔǺǹɉǟ ȽǵǟǶǺǿǟ ǬǬ Ž ǴŧəŸŋȿ ǼǺǺÊǪŸǿ ǴŋȿǺǬŋ ȷǶȮǩ ʔǺǹǕ ǧǺȿǺǵ



ǿǶÛǿǟ ǴǬǺǟȿǽ ǬȚŸƠ Ž ƙǪŋǼǺǪÊṭǟ (ȸȣǕ) ǴǬǺǟȿǾǿǟ ǴŸDZǶǵȿ (ǺÊǺǕ) ǴǿǶǴŋǕ .**2** ǬȮÎǿǟ

ǬȮÎǿǟ) ǺȚȚł .ǶǬǺDzǪǿǟ – ǼȽŧDzǪǿǟ ǬDZɉ ǴŧəŸŋ ǴǬǺǟȿǽ ǬDZǟǶǵ ÿǼǺǪÊǩ *Solubility flasks ǴǬǺǟȿǾǿǟ ǬDZǟǶǵ*
.(gǻǟǼè ȝŋ) ǴŧəŸŋ ǴŸDZǶǵ (2

.ÿǟǺȡȿǺȮŋ 1± ȸŧȉ ȷǟǟȿɉǟ ǬǬ ȝǬǩ ȷǕ ȷǺŧȒǿ ǴǴèǺǺŋ ǴǬǺǺǜȿ ȴəŸŋ ȷǟǺȽŋ ÿǼǺǪÊł *Balance ȷǟǺȽṭǟ*

[illegible]

system composition [illegible]

[illegible] marked [illegible] 7 [illegible] 5 [illegible] 5.0 [illegible] 1 [illegible] W_2 [illegible] W_1 [illegible] $1000(W_2 - W_1)/(W_3 - W_2)$ [illegible] $W3$ [illegible]

Equilibration [illegible]

[illegible] (14-7) [illegible] 7-1) [illegible]

supersaturated [illegible] 10 [illegible] slope [illegible]

solution composition [illegible]

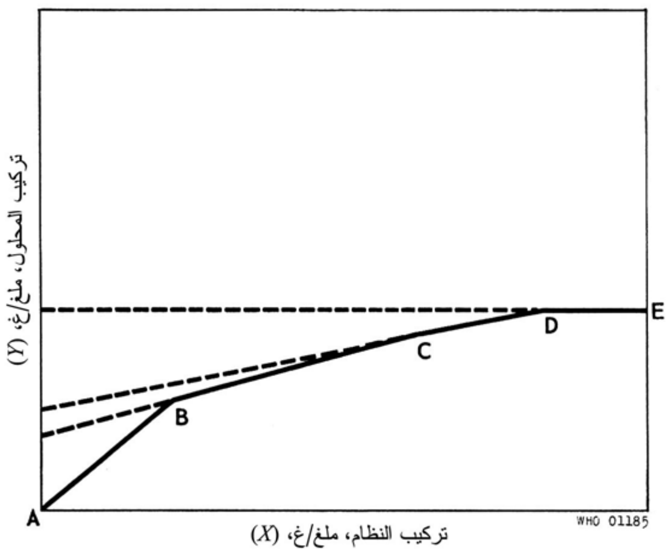
[illegible] 2.0 [illegible] tared solubility flask [illegible] 70 [illegible] 1 [illegible] 100 [illegible] F_2 [illegible] F_1 [illegible] $1000(F_3 - F_1)/(F_2 - F_3)$ [illegible] F_3 [illegible]

Calculation [illegible]

[illegible] X [illegible] Y [illegible] (3 [illegible]) [illegible] (system composition [illegible] 1 [illegible] slope [illegible] (AB) [illegible] S [illegible] (BC) [illegible] solid solution [illegible] Y_2 [illegible] $S = (Y_2 - Y_1)/(X_2 - X_1)$ [illegible] slope [illegible] 100-100S [illegible]

(BC) [illegible] X_1 [illegible] X_2 [illegible] Y_1 [illegible] diagram [illegible] B [illegible] Y [illegible] (BC) [illegible] Y [illegible]

[illegible] C [illegible] Y [illegible] (CD) [illegible]



[illegible]

[illegible] E [illegible] D [illegible] inflexions [illegible] (B) [illegible]

CHEMICAL METHODS ƕŭĭəƑĭǅĭ׀ǁɛ 5ƥư'ǁɛ

GENERAL IDENTIFICATION TESTS [illegible]

Acetylated substances [illegible]

[illegible] monograph [illegible] 18 [illegible] .TS ([illegible] 1440~) [illegible] .([illegible] 30) lanthanum nitrate TS [illegible] spot plate [illegible] .([illegible] 0.02) iodine VS [illegible] porcelain [illegible] .TS ([illegible] 100~) [illegible]

Amines, primary aromatic [illegible]

TS ([illegible] 70~) [illegible] 2 [illegible] TS ([illegible] 10) [illegible] 4 [illegible] .R [illegible] 1 [illegible] 2-naphthol TS1 [illegible] 2 [illegible] 2 [illegible]

Ammonia and volatile aliphatic amines [illegible]

[illegible] 1 [illegible] magnesium oxide R [illegible] manganese/silver R [illegible]

Ammonium [illegible]

[illegible] A [illegible] A [illegible] 1 [illegible] R [illegible] 0.2 [illegible] A [illegible] VS ([illegible] 0.1) [illegible]

[illegible] methyl red/ethanol TS [illegible]
sodium cobaltinitrite [illegible] 1 [illegible] B [illegible]
[illegible] (100 [illegible]) TS

Bismuth [illegible]

A. [illegible] (~250 [illegible]) TS [illegible] 10 [illegible]
sodium sulfide TS [illegible]
B. [illegible] (~1000 [illegible]) TS [illegible]
(80 [illegible]) TS. [illegible] reagent [illegible]
[illegible]
[illegible]
[illegible] (80 [illegible]) TS [illegible]

Bromides [illegible]

A. [illegible] (~130 [illegible]) TS [illegible]
[illegible] (40 [illegible]) TS. [illegible]
[illegible] (~260 [illegible]) TS [illegible] (100 [illegible]) TS [illegible]
(~1000 [illegible]) TS.

B. [illegible] bromides [illegible] hydrobromides [illegible]
[illegible] (~100 [illegible]) TS [illegible]
[illegible] (~130 [illegible]) TS [illegible] A.
C. [illegible] (~100 [illegible]) TS [illegible]
[illegible] chlorine TS [illegible] R [illegible]
[illegible]

Calcium [illegible]

A. [illegible] ammonium oxalate TS
(25 [illegible]). [illegible] (~250 [illegible]) TS [illegible]
(~300 [illegible]) TS. [illegible]

2) ... .B 80~) ... glyoxal bis (2-hydroxyanil) TS ... R ... .TS (...

Chlorides

... TS (... 130~) ... .A (... 100~) ... .TS (... 40) ... .TS (... 1000~) ... TS

... bases ... hydrochlorides ... chlorides ... .B ... TS (... 100~) ... .A ... TS (... 130~) ...

manganese ... .C ... TS (... 1760~) ... dioxide R ... R ... chlorine ... hood (...) ...

Citrates

(... 55) ... .A ... .TS ... .TS (... 300~)

... mercuric sulfate TS ... .B (... 10) potassium permanganate TS ...

Ferrous salts

potassium (... 10) ... .A ... .ferricyanide TS ... .TS (... 70~)

3ŋ žȦȞƚȿ ÛTS (ȯ/ȟ 100~) ȬȺǿɀȦŸÊǿä Ȑƥ ȯɀŸȞʉȶȇ ȐȶȞƚ ÛǥåȿȦɀǧä Ž ȸȞȟ ɀŁ Ȧȶȭ ȯɀŸǂä ȦȒȞƚ .B
ğȦȺŸè ȯɀŸȚ ǦɀȦȓȔ ǼȺȝ ȯȿȦȺ ÛǼȺǼȉ ȦƥȔ ɉɀö ǰȹȺ ǬȼǴ .*o*-phenanthroline TS (ȯ/ȟ 1) ƙöȿȦǯȺǼɀ ɀǿǿȿȔ
.ceric sulfate TS (ȯ/ȟ 35) ȬȺƘÊǿä

Iodides ƖƐǢǏǢNjǏƐ

ȯɀŸȚ ȸŋ ȣȦȒƚȿ TS (ȯ/ȟ 130~) ȬȺȦǬȶǿä ȐƥɀŸȞʉȶȇ ȐȶȞƚ ÛǥåȿȦɀǧä Ž ȸȞȟ ɀŁ Ȧȶȭ ȯɀŸǂä ȦȒȞƚ .A
100~) ȦȨǬɀŋǰä ȯɀŸȚ Ž ȦȨŸȶȝ Ǧǽȿǽ ɉɀȮǩ ÛɉɀŸǿä ǿȦȺȍ ǦǦǽǿ ǦǽȦèǿ ȮȮȊǬǩ .TS (ȯ/ȟ 40) ǦȒȦǿä ğȦȦǬ
.TS (ȯ/ȟ 1000~) ȬȺȦǬȶǿä Ȑƥ ȯɀŸȚ Žȿ TS (ȯ/ȟ
ÛǥåȿȦɀǧä Ž ȸȞȟ ɀŁ Ȧȶȭ ȯɀŸǂä ȦȒȞƚ .(ɉȦȿǾǿä ǦŸȨŸȩ ȿȔ ǦǽȿǾǿä Ƙȡ Èèǰäiodides ğȦǼȺåɀȺ ǿȦǬȵä ȮǱǰ) .B
ÛTS (ȯ/ȟ130~) ȬȺȦǬȶǿä Ȑƥ ȯɀŸȞʉȶȇ ǦǴȦȉȦǿä ȐȶȞƚȿ ǴȊȦȺ ÛTS (ȯ/ȟ100~) ȦȨǬɀŋǰä ȯɀŸȚ ȸŋ ȣȦȒƚ
.A ǿȦǬȵȓä Ž åǿȿ Ȧȶȭ ȮȶȞǿä ȮȶȮƚȿ
ȸŋ ȣȦȒƚȿ ÛTS (ȯ/ȟ100~) ȬȺǿɀȦŸÊǿä Ȑƥ ǦÛèȦɀǽ ȐȶȞƚ ÛǥåȿȦɀǧä Ž ȸȞȟ ɀŁ Ȧȶȭ ȯɀŸǂä ȦȒȞƚ .C
3ŋ Ȑǃä ǼȞȿ ÜɄǿȦǽ ɉɀä ȯɀŸȚ ǰȹȺ .TS (ȯ/ȟ 100) potassium nitrite ȳɀȨèȦǩɀǦä ƘȺȦǬ ȯɀŸȚ
.ɄǱÊȦȺǦä ƂȔ ǦȨŋǿɀɀȿǿɀŸȮä ǦǿǦÛä ɉɀö ȯɀȞǬȺ ȦȶȺǽ ÛɉɀŸä ƇǼȝ ǴǦȎȺ ÛȳǿɀɀǿȿǿɀŸȮä

Nitrates ƖƐƥȞȆƐ

ɍ .TS (ȯ/ȟ 15) ferrous sulfate äȿǼȺƩä ğȦȺŸè ȯɀŸȚ 3ŋ žȦȞƚȿ ǥåȿȦɀǧä Ž ȸȞȟ ɀŁ Ȧȶȭ ȯɀŸǂä ȦȒȞƚ .A
ȦŁǼȝ .ǦȨŸȦè ǦǿǦù ȮȨȮȊǬö ǿǾШ TS (ȯ/ȟ 1760~) ȬȺǿɀȦŸÊǿä Ȑƥ ǦɀȦȓȔ ȴǬƁ Ȧŋ Ʉǿȡ ɉɀö ƂȔ ȦȚȚȦ
.ƘŸǝȦÊǿä Ƙǽ ȮȮȦȺǿ ǴÛÊǿä Ž Ʉǿȡ ɉɀö ǰȹȺ
ȸŋ Ȯŋ 0.2ȿ nitrobenzene R ȸȦȂȦȿȦǬȶǿä ȸŋ Ȯŋ 0.1 ȸŋ ǰȦȂŋ ƂȔ ǦȶȝȦǿä ǿȦǬȵȓä ǥåȦŋ ȸŋ ȠŸŋ 2 ȣȦȒƚ .B
Ž åǮƚȿ ÛȨǝȦȿå ÈȐ ǥǼŋ ǦɀȦȣǿä ǥǿȦǥ ǦǱǿå Ž åɀȭȦŸö ȭȦǬȓ .TS (ȯ/ȟ 1760~) ȬȺǿɀȦŸÊǿä Ȑƥ ȯɀŸȚ
ȣȦȒƚ .TS (ȯ/ȟ 400~) ȳɀȦåɀȎǿä ǼȨÊȭȿǿǼȨŁ ȯɀŸȚ ȸŋ Ȯŋ 3ȿ ȭȦȶä ȸŋ Ȯŋ 5 ǯȂȶä 3ŋ ȭÜǦǽ ȣȦȒƚȿ Ûǰǯǿä
.ǼȺǼȉ ɄǱÊȦȺǽ ɉɀö ǦȺɀȞǿä ǦǿǦÛä Ž ǰȹȺ .ȮȎȦȦö ȭȦǬƚȿ ȵȒȦȁ Ûacetone R ɉɀǬèǰä ȸŋ Ȯŋ 5

Orthophosphates ƖƑƨǯ NjƙƥNjǛƐ

ȳɀȨǬɀŋǰä ğȦǼǦåɀŋ ȯɀŸȚ ȸŋ Ȯŋ 5 ƂȔ TS (ȯ/ȟ 130~) ȬȺȦǬȶǿä Ȑƥ ȯɀŸȚ ȸŋ ǦȨȶȮö ǥȦÛȭɀ ǥȦÛȩ ȣȦȒƚ .A
ƙȶÊȭǿä ǼǴȔ ƂȔ ȣȦȒƚ ÛƙȶÊȩ ƂȔ ȯɀŸǂä ȦǾŁ ȴÊȭƚ .ȦȚȚǩ ɉȔ ȸȮɀ ǦǽȦèǿ ǦȞȔ ȃȿǾǩ ʔǿǬǴ TS (ȯ/ȟ 95)
Ɏȭ ʔŸȣƚȿ ÛǥåȿȦɀǧä Ž ȸȞȟ ɀŁ Ȧȶȭ TS (ȯ/ȟ 130~) ȬȺȦǬȶǿä Ȑƥ ȯɀŸȞʉȶȇ ȐȶȞƚä ǿȦǬȵȓä ȯɀŸȚ ȸŋ
.ǦȺȨȦù ȳɀȶȡ ȸŋ ȦǯȭȔ ɄǿǬȦǯǿä ȴÊȭǿä ȦȚȚȦ ɍ ȦȶȺǽ ǿȦǬȵȓä ȯɀŸȚ 3ŋ ɉɀŸä ǿȦȺȍ ǦǽȦèǿ ȮȮȊǬǩ .ƙȶÊȭǿä

[illegible] TS ([illegible] 40) [illegible] B.
100~) [illegible]
TS ([illegible] 1330~) [illegible] TS ([illegible]

Potassium [illegible]

sodium ([illegible] 30) [illegible]
[illegible] tetraphenylborate TS.

Salicylates [illegible]

ferric ([illegible] 25) [illegible] neutral [illegible]
[illegible] chloride TS.
hydrochloric acid [illegible] ([illegible] 300~) acetic acid TS [illegible]
[illegible] TS ([illegible] 70~)

Sodium [illegible]

[illegible] TS ([illegible] 250~) [illegible] A.
[illegible]
[illegible] technical [illegible] A.
[illegible] TS ([illegible] 60~) [illegible] B.
[illegible] uranyl/zinc acetate TS [illegible]

Sulfates [illegible]

barium chloride TS ([illegible] 50) [illegible] A.
TS ([illegible] 250~) [illegible]
[illegible] lead acetate TS ([illegible] 80) [illegible] B.
[illegible] ammonium acetate TS ([illegible] 80) [illegible]
[illegible] TS ([illegible] 80~) [illegible]

Tartrates [illegible]

[illegible] TS ([illegible] 300~) [illegible] A.

[illegible] (15 ~/ [illegible]) TS [illegible] ferrous sulfate [illegible]
[illegible] hydrogen peroxide TS [illegible] (80~ /[illegible]) TS [illegible]
[illegible]

B. [illegible] (1760~ /[illegible]) TS [illegible]
resorcinol (20~ /[illegible]) TS [illegible] potassium bromide (100 /[illegible]) TS
[illegible] 10-5 [illegible]
[illegible]

LIMIT TEST FOR CHLORIDES [illegible]

[illegible]
[illegible] individual monograph [illegible] micrograms [illegible]
chloride ions [illegible] 1 [illegible] 250 [illegible]
Cl⁻ [illegible]

RECOMMENDED PROCEDURE [illegible]

23 [illegible] 70 [illegible]
[illegible] mark [illegible] 45 [illegible] 50 [illegible] Nessler [illegible]
[illegible] expression " [illegible] "matched tubes [illegible]
[illegible]

[illegible] 1 [illegible] 50 [illegible]
[illegible] (40 / [illegible]) TS. [illegible] 5 [illegible]
[illegible] opalescence [illegible]
[illegible]

Standard opalescence [illegible]

[illegible] 5.0 [illegible] hydrochloric acid CITS [illegible] 10 [illegible]
(130~ /[illegible]) TS [illegible] comparison tube. [illegible] 50 [illegible] 1 [illegible]
[illegible] (40 /[illegible]) TS. [illegible] 5 [illegible]
[illegible]

LIMIT TEST FOR SULFATES [illegible]

[illegible] 1 [illegible]

[illegible] SO_4^{--} [illegible] 480 [illegible]

standard barium sulfate suspension [illegible]

RECOMMENDED PROCEDURE [illegible]

[illegible] 23 [illegible] 70 [illegible]

[illegible] Nessler [illegible] 50 [illegible] 45 [illegible] mark [illegible]

[illegible] matched tubes [illegible] expression [illegible]

[illegible]

[illegible] 5 [illegible] 45 [illegible]

[illegible] 10 [illegible] TS [illegible]

[illegible] turbidity

[illegible]

Standard turbidity [illegible]

[illegible] 3 [illegible] 0.005) sulfuric acid VS [illegible] 1.0 [illegible]

[illegible] 5 [illegible] 45 [illegible] comparison tube [illegible] TS [illegible] 70~) [illegible]

10 [illegible] barium sulfate suspension TS [illegible]

[illegible]

LIMIT TEST FOR HEAVY METALS [illegible]

metallic impurities [illegible]

[illegible] hydrogen sulfide [illegible]

[illegible] 1 [illegible] lead [illegible]

[illegible]

standard [illegible] hydrogen sulfide

[illegible] 4 [illegible] 1 [illegible]
[illegible] blank [illegible]

[illegible] TS [illegible] TS [illegible]
[illegible] (A [illegible]) [illegible]
[illegible] (B [illegible]) [illegible]

[illegible] A [illegible]
[illegible] B [illegible] 5-2 [illegible] 5 [illegible]
[illegible] 10 [illegible] lead Pb TS [illegible]
[illegible] 1 [illegible] 0.1 [illegible] 1 [illegible]
1 [illegible] Pb [illegible] 1 [illegible]
[illegible] 1 [illegible]

Apparatus [illegible]

[illegible] A [illegible]
[illegible] 40 [illegible] mark [illegible] 23 [illegible] 70 [illegible]
[illegible] expression [illegible] Nessler [illegible] 50
[illegible] "matched tubes
[illegible] loop [illegible]

[illegible] syringe [illegible] –50 [illegible] B [illegible]
9 [illegible] lure conical joint [illegible] plunger [illegible] (plastic [illegible]
[illegible] adapter [illegible] (Millipore syringe XX 11 050 05 [illegible])
[illegible]

[illegible] SX00 013 00 [illegible]
[illegible] polypropylene
[illegible] 13 [illegible]
([illegible] Millipore prefilter AP 2001 300 [illegible]) [illegible] prefilter [illegible]
[illegible] 3 [illegible] 13 [illegible] cellulose esters [illegible]
.([illegible] Millipore filter SSWP 013 00 [illegible])

Preparation of test solution [illegible]

4-3 [illegible] pH [illegible] 25 [illegible] .1 [illegible]
[illegible] (100~ [illegible]) ammonia Pb TS [illegible] Pb TS ([illegible] 60~) [illegible]
[illegible] 40 [illegible]

[illegible] 30 [illegible] .2 [illegible]
[illegible] (dioxanR [illegible] acetone R [illegible] methanol R [illegible] (50~ [illegible]) ethanol TS [illegible]
.solvent [illegible] 40 [illegible] (300~ [illegible]) acetic acid TS [illegible] 0.5 [illegible]

[illegible] crucible [illegible] .3 [illegible]
[illegible] charred [illegible] silica [illegible]
[illegible] 2 [illegible] .charring [illegible]
([illegible] 1760~) sulfuric acid TS [illegible] 5 ([illegible] 1000~) nitric acid TS
[illegible] muffle furnace [illegible] fumes [illegible]
[illegible] 2 [illegible] 500 [illegible]
[illegible] residue [illegible] TS ([illegible] 250~)
[illegible] digest [illegible] 10 [illegible] (250~ [illegible]) hydrochloric acid TS [illegible]
[illegible] pH [illegible] (100~ [illegible]) ammonia Pb TS [illegible]
[illegible] (60~ [illegible]) acetic acid Pb TS [illegible] 8.5 [illegible] 8 [illegible]
[illegible] 40 [illegible] 10 [illegible] .4 [illegible] 3

[illegible] .4 [illegible]
[illegible] magnesium oxide R [illegible] 0.5 [illegible]
[illegible] incineration [illegible] 15 [illegible]
70~) [illegible]
[illegible] pH [illegible] (100~ [illegible]) ammonia Pb TS [illegible] TS ([illegible]
[illegible] (60~ [illegible]) acetic acid Pb TS [illegible] 805 [illegible] 8 [illegible]
[illegible] 40 [illegible] 4-3 [illegible]

.A [illegible]

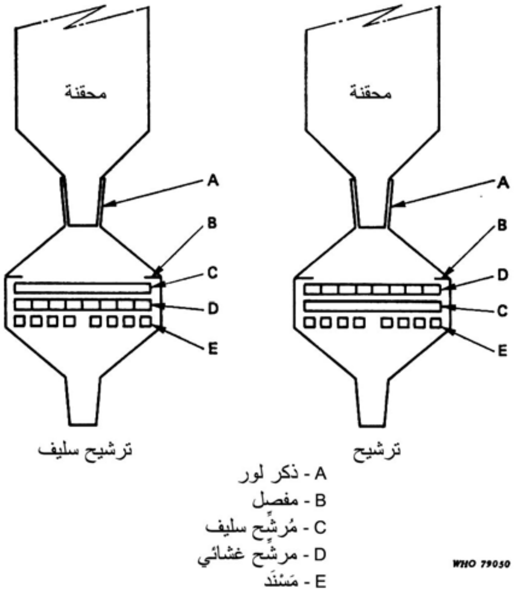
[illegible] TS [illegible] 10 [illegible] 40 [illegible]
.[illegible] 5 [illegible]

[illegible] lead Pb TS [illegible]
ammonia Pb TS [illegible] pH [illegible]
[illegible] 4-3 [illegible] (~60) acetic acid Pb TS [illegible] (~100)
[illegible] TS [illegible] 10 [illegible] 40 [illegible]
.[illegible] 5 [illegible]

[illegible]
. [illegible]

.B [illegible]

[illegible] diagram [illegible]
[illegible] syringe [illegible] plunger [illegible] prefiltration [illegible]
[illegible]
[illegible] membrane filter [illegible] adapter [illegible] beaker
[illegible] B [illegible] .impurities [illegible]
ammonia Pb [illegible] .(4 [illegible]) [illegible]
[illegible] 10 [illegible] 4-3 [illegible] (~60) acetic acid Pb TS [illegible] (~100) TS
[illegible] reagents [illegible] hydrogen sulfide TS [illegible]
[illegible] 5 [illegible]
.[illegible]
[illegible] Pb TS [illegible]
[illegible] (~100) ammonia Pb TS [illegible]
[illegible] 40 [illegible] 4-3 [illegible] (~60) acetic acid Pb TS [illegible]
.[illegible]



[illegible] 4. [illegible] B

[illegible]

LIMIT TEST FOR IRON [illegible]

[illegible] iron [illegible]

[illegible] 40 [illegible]

RECOMMENDED PROCEDURE [illegible]

23 [illegible] 70 [illegible] mark [illegible] 45 [illegible] 50 [illegible] Nessler [illegible] expression [illegible] "matched tubes" [illegible]

[illegible] 40 [illegible] 2 [illegible] FeTS [illegible] citric acid (180/[illegible]) [illegible]

ÛȬɳ 50 Бǚ ŏǺƫǺǣ ȤǺǺǺł Û(ȯ/ȟ100) ammonia FeTS ǺƐɋȥɳɉǟ ȯȥŸĦɫȇ ɉȥŸȬł ÛǯÂɫł Ümercaptoacetic acid R ʔǺł ǺɳǼǺɜ ¢ǟǺ Îɧ ÕÒ Îǣ ǺȒĦɫƫǟ ɃøǺƐȞƈǟ ɉȥŸǟ ȸɳ ǥǼȗ ǺǮȭǚ ǰǩǺǟ ɉȥŸǟ ɉȥÒǺ ɍ .øǟǺȬǪèŸǒ ĘǝǺęǻ 5 ǥǼɳ ȭ̄ǺǪɬʂ .ŏǺȒƐǣ ǦƐǺŸǹ ÕǟǺȬɳ ǺǮǪǺɳ ŏȥȑ Ž ǟȥǬǬǬǒ ɃǻȥɫȞǟ øȥǂǟ ȻǺѲǺǣ

Standard colour ǎƥƑĭƴ

Ȭɳ 2 ȣǺȒł .ǦǬøǺȬƫǟ ǟȥǬǚ Ž ŏǺƫǟ ȸɳ Ȭɳ 40ʂ iron standard FeTS ǼǺǼĦŸǒ ɃøǺƐȞƈǟ ȯȥŸǂǟ ȸɳ Ȭɳ 2 ǟǺȬł ȬƐǪèǚ ȥǪǟǺȭƘɳ Ȑƥ ȯȥŸȚ ȸɳ ɉǺǨǺÛɛʂ (ȯ/ȟ 180) citric acid FeTS ȬǺǺǪƐÊǟ Ȑƥ ȯȥŸȚ ȸɳ ÛȬɳ 50 Бǚ ŏǺƫǺǣ ȤǺǺǺł Û(ȯ/ȟ 100) ammonia FeTS ǺƐɋȥɳɉǟ ȯȥŸĦɫȇ ɉȥŸȬł ÛǯÂɫł Ümercaptoacetic acid R .øǟǺȬǪèŸǒ ĘǝǺęǻ 5 ǥǼɳ ȭ̄ǺǪɬʂ

LIMIT TEST FOR ARSENIC ơĭǥƥȒ üШǓ ǎǫƟ ƥƑǦƗɊǓ

Ž ʔÛĦƫǟ ǼΣǟ ȸɜ ǼǺǺ ɍ ɉǚ Ƶ ǸƐǬøǺǟ ȸɳ ʔȥǂǟ ɉǚ ǴƐȑȥǒ arsenic ǸƐǬøǺǟ ÕǄɉ ɃǼΣǟ øǺǦǹɍǟ ÿǼȬł .ǥƎǪǺƫǟ ǥǻǺƫǟ ȸɳ ÿǟǺȡ 1 Ȭȭ Ž ǸƐǬøǺǟ ȸɳ ğǺɳǟǺȡʂǺÒƈǟ ǻǼɜ ǦǒɍǼǣ ǦǺǻǺǺǟ ǥǻʂǺȥǥɉǟ .ǥǻʂǺȥǥɉǟ Ž ȸĦƫǟ ŏǟǺǄȡǟ ÆÊШ ǥǺƐǺƫǟ ǥǻǺƫǟ ȸɳ ȯȥŸȚ ǺȒĦł ǸƐǬøǺǟ ÕǄɉ ɃǼΣǟ øǺǦǹɍǟ ŏǟǺǄǚ ǦƐȣǣ .ǥǻǺƫǟ Ž ǻȥǄȥƫǟ (ǟǻȥǄȥɳ ¢ǺɳǺǚ ɉǺȭ ǟǚ) ǸƐǬøǺǟ ȬɳǺȭ ǦǺǵ Ȭȭ Ž ɃȥǪǯ ȯȥŸǂǟ ɉǚ ʔŸɜ ŏǟǺǄȡǟ ǟǾȽ ȸɫȒǺ .As ȸɳ ÿǟǺȡʂǺÒɳ 10 ʔŸɜ ǺƮŸǟǺȬɧ ǦǬøǺȬƫǟ ɭǪǨ ɄøǪǟ standard stain ǦǺøǺƐȞƈǟ ǦǺÛǟǟ ɃȥǪĦǨ ǦŸÊŸè ɜɳ ǦǺÛǟǟ ɉȥǒ depth ĘɫƂ ǦŸǟǺȬɧ ǥǻǺƫǟ Ž ǸƐǬøǺǟ ǦƐɫȭ ƘƐȞǪǒ ǺȒǺǚ ȣȥȍȥƫǟ ŏǟǺǄȡǟ ÕɫȞǪÊł ɉǚ ȸÒɕ ʔŸɜ ǥǻǺƫǟ ȸɳ ȟ 10 ʔŸɜ ÕɫȞǟ ȸɳ ǦѲǺǺǟ ǦǺøǺƐȞƈǟ ǦǺÛǟǟ ȸɳ Ȭɳ 1 Бǚ ǦǺǤǺÒƫǟ ǦǺÛǟǟ ȯǼǨ .ǦǺøǺƐȞƈǟ ğǺǺÛǟǟ ȸɳ .ÿǟǺȡ/ÿǟǺȡʂǺÒɳ 1 ȥȽ ǸƐǬøǺǟ øǟǼȬɳ ɉǚ .As ÕÒȉ ʔŸɜ ¢ǟ ǳȥɫÊƫǟ ǸƐǬøǺǟ øǟǼȬɳ ȸɜ ǺǺǺł ÛǸƐǬøǺǟ ǻʂǼǵ ɉǺƐǣ Ž

Apparatus ȒƑNJШ

.ʔǺǹǺ ǦǒȥǦȬɳ ǥǺƮǄǚ ǺȥǟȥǨ ɭǪǺʂ ÛǺǺǺǻǚ ȣȥȍȥɳ ǟǺƮǄŸǒ ÆèǺƫǟ ÙɫǺǟ .ɄǄǺǄǟ ǟȥǬǚ ǺƮŸǹ ȸɳ Ǻɕ rubber bung ǦƐǜǺÛɳ ǥǻǟǼÊǣ ǥǻʂǺɳ ÛȬɳ 120 ǦǟǟǺǺ ǦĦÊǣ ɭǺǟ ǦȒǺɜ ǥøʂøǺɛ ɄǄøǺɩǟ ǺÛȬǟ) ǺɳǺǪ ɭŸɳ 605 ɄŸǹǟǼǟ ȻǺÛɛʂ ɭŸɳ 200 ¢ȥǜ ɃǾǟʂ ÛǦǺǻǺĦǟ ÆƐǟǺǬɉǟ ǯǺǄǟ ȸɳ ÛƘǹɉǟ ǟǾȽ ȒǺÔł ÆǬǺǄ Ž ǸǺǪǺɳ ɭŸɳ 2 ȸɜ ȻǺÛɛ ÕÕǺ ɍ ȤǺȥѲ ¢ȭʂ ÛɭŸɳ 1 ǦǟǟǺǺ ǺÛɛ Бǚ ¢ƐǪǺǼ ʔǼǵǚ Ž ǟȥĦÊɳ Û(ɭŸɳ 8 Бǟȥǵ ǺɳǼǺɜ Û¢Ǭǚ ǪƐШ ǥøʂøǺȬǟ bung fitting ÆèǺǺ ǥǟǼè ȯŸǹ ǟȥǬɉǟ Ǻɫǟ .ĘƐȒǪƫǟ ÆǬǺƨǟ ȸɳ ǟǺȬǺǨ ÛǟȥǬɉǟ ɉȥÒǺʂ ÕǝǺÊǟ ǴÛè ȧȥȥ ǟȥǬǬǬǒ ǦȬƐȒǪƫǟ ǦǺǺƮǟǟ ɉȥÒǨ ÛÕǝǺÊǟ ȸɳ Ȭɳ 70 ʔŸɜ ǦǺʂǺΣǟ ǥøʂøǺȬǟ Ž ÕǹǼł ɉǚ Ǻɳǚ ɄȽʂ ÛɜǟǺɧ ÕÒ Îǣ ǦɜȥÛȬɳ ǟȥǬǬǬǒ ǦǺȥŸĦǟ ǦǺǺƮǟǟ ɉȥÒǨ .bung ǥǟǼÊǟ ƫǺę ÕǺèǚ ÆǬǺƨǟ Ž ȤǺȥǄȥǬǟ

[illegible].

[illegible] 6.5 [illegible] (25 × [illegible] 25) [illegible] spring clip [illegible] construction [illegible].

RECOMMENDED PROCEDURE [illegible]

[illegible] TS ([illegible] 80~) [illegible] 25 [illegible].

10 [illegible] (1) [illegible] (2) [illegible] mercuric bromide AsR [illegible] 6.5 [illegible] mercuric bromide AsR [illegible] diaphragm.

[illegible] (1) [illegible] AsR [illegible] (3) [illegible] 6.5 [illegible] (2) [illegible].

[illegible] 1 [illegible] granulated zinc AsR [illegible] 10 [illegible] potassium iodide AsR [illegible] 40 [illegible] mercuric bromide AsR [illegible] diluted arsenic AsTS [illegible].

[illegible] 40 [illegible] granulated zinc AsR [illegible] batches [illegible] accelerated [illegible] AsR [illegible].

[illegible] AsTS ([illegible] 250~) [illegible] .[illegible]

Standard stain [illegible]

stannated hydrochloric acid [illegible] 10 [illegible] 50 [illegible] dilute [illegible] arsenic AsTS [illegible] 1 [illegible] ([illegible] 250~) AsTS mercuric bromide paper [illegible] .[illegible] AsR

SULFATED ASH [illegible]

RECOMMENDED PROCEDURE [illegible]

[illegible] dish [illegible] 1 [illegible] .TS ([illegible] 1760~) [illegible] moisten [illegible] (platinum [illegible] 800 [illegible] ([illegible]) [illegible] TS ([illegible] 1760~) [illegible] .[illegible] ignite ([illegible]) [illegible] ammonium carbonate R

OXYGEN FLASK METHOD [illegible]

[illegible] sulfur [illegible] halogens [illegible] .titrimetric determination [illegible] organic [illegible] water-soluble inorganic [illegible] .individual element [illegible]

Apparatus [illegible]

[illegible] combustion [illegible] 500 [illegible] platinum gauze [illegible] .[illegible] absorbing liquid [illegible]

CAUTION:

scrupulously

halid-free 5 ... 3

package ... strip

oxygen

10

pulverizable

(methyl- ... capsules

ashless filter-paper flock ... 15 ... cellulose.

Determination of bromine and chlorine

17 ... hydrogen peroxide TS ... (60~) 3

40

5 ... bromophenol blue/ethanol TS

VS (0.1)

diphenyl- ... TS (3) ... 1

(0.01) mercuric nitrate VS ... indicator ... carbazone/ethanol TS

1 ... VS (0.01) ... Br ... 1.598 ... Cl ... 0.709.

Determination of fluorine [illegible]

[illegible] 124 [illegible] 15 [illegible] 40 [illegible]

[illegible] alizarinsulfonate TS [illegible] 1) [illegible] 0.6 [illegible] 5 [illegible] 0.1) [illegible] thorium [illegible] 3.0 [illegible] acetate buffer TS [illegible] 0.005) nitrate VS [illegible]

[illegible] 1 [illegible] 0.005) VS [illegible] 0.380 F.

[illegible] indicator [illegible] inorganic fluoride.

Determination of iodine [illegible]

[illegible] 120 [illegible] 10 [illegible] 0.2) VS. [illegible] 25 [illegible] 40 [illegible] bromine TS1 [illegible] 15 [illegible] TS [illegible] 20 [illegible] 1080~) formic acid TS [illegible] 5 [illegible] 0.5 [illegible] 0.05) VS [illegible] 0.005) sodium thiosulfate VS [illegible] liberated iodine [illegible] starch TS [illegible] indicator [illegible]

[illegible] 1 [illegible] 0.05) VS [illegible] 1.06 [illegible] I.

Determination of sulfur [illegible]

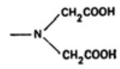
[illegible] 120 [illegible] 12.5 [illegible] hydrogen peroxide TS [illegible] 60~). [illegible] 40 [illegible] 10 [illegible] 2 [illegible] 300~) [illegible] 20 [illegible] 0.01) barium nitrate VS [illegible] 750~)

0.2) methylthioninium chloride TS [illegible] (2 [illegible]) thorin TS [illegible] [illegible] .pink [illegible]

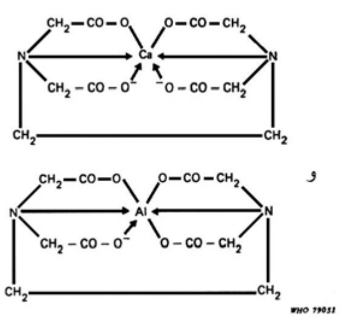
.S [illegible] 0.321 [illegible] VS ([illegible] 0.01) [illegible] 1 [illegible]

COMPLEXOMETRIC TITRATIONS [illegible]

[illegible] titrants [illegible] complexing agents [illegible] aminopolycarboxylic acids [illegible]:



[illegible] cations [illegible] chelate [illegible] salt-like bond [illegible] electrons [illegible] coordinate bond [illegible] edetic [illegible] chelating [illegible] (ethylenediaminetetraacetic acid, EDTA) [illegible] acid [illegible] .disodium edetate [illegible] Water-soluble 1:1 [illegible] unit [illegible] ([illegible]) [illegible] confer [illegible] complexes [illegible] coordinate bonds [illegible] carbonyl oxygens [illegible] trivalent aluminium [illegible]:



[illegible] metals ([illegible]) [illegible] .pH [illegible] decompose [illegible] alkaline solution [illegible] lead [illegible] zinc [illegible] ([illegible]) [illegible] 8 [illegible] trivalent metal complexes [illegible] ([illegible]) [illegible] chelate rings [illegible] ([illegible]) [illegible] alkaline solutions [illegible] stability [illegible] editic acid [illegible] hydroxides [illegible] .metal hydroxide ([illegible]) [illegible]

Schwarzenbach [illegible] ([illegible]) [illegible] 20 [illegible] 0.1 [illegible]:

1.7	Na
2.8	Li
8.7	Mg
10.6	Ca
14.3	Fe^{2+}
15.5[a]	Al
16.1	Zn
17.6	Pb
20.4	Hg^{2+}
25.1	Fe^{3+}

.back-titration [illegible] ([illegible]) [illegible] [a]

[illegible] ([illegible]) [illegible] murexide [illegible] calcium ions [illegible] Schwarzenbach [illegible] (ammonium purpurate [illegible] Mordant Black 11 [illegible] ([illegible]) [illegible] ammoniacal solution [illegible] corresponding [illegible] indicator complex [illegible] ([illegible]) [illegible] edetates [illegible]

[illegible] Mordant Black 11 [illegible] screened [illegible] endpoint [illegible] methyl orange [illegible]

[illegible] pharmaceutical [illegible] potential [illegible] calconcarboxylic acid [illegible] calcon [illegible] sodium edetate [illegible] hydroxide [illegible] magnesium [illegible] pH 12-14 [illegible]

acid-base [illegible] xylenol orange [illegible] iminodiacetic acid [illegible] metal-complexing [illegible] lead [illegible] bismuth [illegible] aluminium [illegible] zinc [illegible] mercury [illegible] 2-6 [illegible]

RECOMMENDED PROCEDURE [illegible]

Aluminium [illegible]

[illegible] monograph [illegible] 2 [illegible] 50 VS [illegible] 1) [illegible] neutralize [illegible] 0.05) disodium edetate VS [illegible] 50 [illegible] methyl red/ethanol TS [illegible] 1) VS [illegible] 50 [illegible] 10 [illegible] methenamine R [illegible] 5 xylenol orange R [illegible] 0.05) lead nitrate VS [illegible] 0.05) disodium edetate VS [illegible] 1 [illegible] 1.349 [illegible] Al.

Bismuth ŀNjDžŘĜǁƐ

ȯζŸƮ ȡŋ ĞĿŧõ Ȁ8ȍǗ Ž Ûmonograph ģấşÀζģ ȁ Ž ȡĦĦ ζȽ Åŧõ ÛĞĿüζĜŘŧȇ Ğȹşàζţ ȁ Ûģấţ ȁ ȡŋ ĞĿŧõ ȁȁØǩ
ģÀÛę ĞζÅȓǗ ĞÛȅȁζȁ 2ş 1 ƙȁ ȍÅȽÅĞȍȁ ÙĞŘŀş ȍÅţȁ ȡŋ Ōŋ 50 ȣÅŘŀş Û(ȯ/ȟ 130~) nitric acid TS ȭÀÀǪĈȍȁ Ȑƥ
50 ȣÅŘŀ .(ȯ/ȟ 100~) ammonia TS ÅĿǫζŋȷȁ ȯζŸƮ ȡŋ şǗ TS (ȯ/ȟ 130~) ȭÀÀǪĈȍȁ Ȑƥ ȯζŸƮ ȡŋ ÅŋǗ ģÀÛę
ȳζÀấζÔȍȁ ĞĿəÅÅ ğÅǪÀÆÀǗ ȯζŸƮ ĞÛȅȁζȁ ȍÙĞȁ ÀÀÅĦŀş xylenol orange R ȯζÆŸÀÂȍȁ ĞĿȍÅÕŀÅ ÀĦÎŋ ǰÀÂŋ ȡŋ ÅĞÀÅÕǩ ŊŸŋ
Ōõ .ŌŋÅÒȍȁ ÀÀȍȷȁ БǗ ȞŸÀǫÀŌȍȁ ȞDzÊÀÀĞȍȁ ȡŋ ȯζŸǂȁ ɈζȌ ȯζĦǪÀ ɁØǪģ (ȯ/ȯζŋ 0.05) disodium edetate VS
.Bi ȡŋ ŊŸŋ 10.45 ȍżÅÒŀ VS (ȯ/ȯζŋ 0.05) disodium edetate ȳζÀấζÔȍȁ ĞĿəÅÅ ğÅǪÀÆÀǗ ȯζŸƮ ȡŋ Ōŋ1

Calcium !NjǐƨǁƑǀǁƐ

ÛȍÅţȁ ȡŋ ğȁÀǪȍ ȞŸĿĥ ȜŘȁ Ž Ûmonograph ģấşÀζģȁ Ž ȡĦĦ ζȽ Åŧõ ÛĞĿüζĜŘŧȇ Ğȹşàζŋ ÛģấÅţȁ ȡŋ ĞĿŧõ ȁȁØǩ
БǗ ȍÅţÀȁ ȤÅÅǺŀ Ż ȡŋş ÛÀÀøşÀȓ ɈÅõ ȁȁǗ TS (ȯ/ȟ 70~) ȭÀøζŸõşøÆĿTȁ Ȑƥ ȯζŸƮ ȡŋ ĞĿŧõ Ōęüȁ ȐŀĦŀş
ĞȁȁÀę ḺDzģ ɁØǪģ VS (ȯ/ȯζŋ 0.05) disodium edetate ȳζÀấζÔȍȁ ĞĿəÅÅ ğÅǪÀÆÀǗ ȯζŸĦŧȇ ÀÀÅĦŀ .Ōŋ 100 ĞȁȁÀę
ȡŋ ȟ 0.1ş TS (ȯ/ȟ 300~) ȳζÀấζÔȍȁ ÆĿÊõşøÆĿȽ ȯζŸƮ ȡŋ Ōŋ 4 ȣÅŘŀş ÛĞĦęζǪţȁ űζÅÒǪȍȁ ĞÛŌǫ ȡŋ Ōŋ 2
calcon ȭĿŸĿÊõζȁÀõ ɈζȌÅÒȍȁ Ȑƥ ÀĦÎŋ ǰÀÂŋ ȡŋ şǗ calcon indicator mixture R ɈζȌÅÒȍȁ ÀĦÎŋ ǰÀÂŋ
БǗ pink ȞŸÀǫÀŌȍȁ Àƥȷȁ ȡŋ ȯζŸǂȁ ɈζȌ ȯζĦǪÀ ɁØǪģ ģÀÀĦţȁ ȜȁÅǪŀş carboxylic acid indicator mixture R
2.004 ȍżÅÒŀ (ȯ/ȯζŋ 0.05) disodium edetate VS ȳζÀấζÔȍȁ ĞĿəÅÅ ğÅǪÀÆÀǗ ȯζŸƮ ȡŋ Ōŋ 1 Ōõ .ŌŋÅÒȍȁ ȧøàȷȁ
.Ca ȡŋ ŊŸŋ

Lead ţƑƬƥǁƐ

ÛȍÅţȁ ȡŋ Ōŋ 10-5 Ž Ûmonograph ģấşÀζģȁ Ž ȡĦĦ ζȽ Åŧõ ÛĞĿüζĜŘŋ Ğȹşàζŋ ÛģấÅţȁ ȡŋ ĞĿŧõ ȁȁØǩ
Ż ȡŋş ÛÀÀøşÀȓ Ōȍæ ɈÅõ ȁȁǗ TS (ȯ/ȟ 300~) acetic acid ȭĿǪĿȅȷȁ Ȑƥ ȯζŸƮ ȡŋ ĞĿŧõ Ōęüȁ ȐŀĦŀş
xylenol orange indicator ȯζÆŸÀÂȍȁ ĞĿȍÅÕǩÀŀ ÀĦÎŋ ǰÀÂŋ ȡŋ ŊŸŋ 50 ĞȁȁÀę ȣÅŘŀ .Ōŋ 50 ĞȁȁÀę БǗ ȍÅţÀȁ ȤÅÅǺŀ
ÀÀÅĦŀş ģÀŧğ БǗ ȯζŸǂȁ ɈζȌ ȯζĦǪÀ ɁØǪģ (ȟ 5 ĞȁȁÀę) methenamine R ƙŋǗ ƙǰĿţȁ ȡŋ ĞĿζÅõ ĞĿŧõş mixture R
ȞDzÊÀÀĞȍȁ ȡŋ ȯζŸǂȁ ɈζȌ ȯζĦǪÀ ɁØǪģ VS (ȯ/ȯζŋ 0.05) disodium edetate ȳζÀấζÔȍȁ ĞĿəÅÅ ğÅǪÀÆÀǗ ȯζŸĦŋ
VS (ȯ/ȯζŋ 0.05) disodium edetate ȳζÀấζÔȍȁ ĞĿəÅÅ ğÅǪÀÆÀǗ ȯζŸƮ ȡŋ Ōŋ 1 Ōõ .ŌŋÅÒȍȁ ÀÀȍȷȁ БǗ ȨŋÅ8ȍȁ
.Pb ȡŋ ŊŸŋ 10.35 ȍżÅÒŀ

Magnesium !NjǐŘǁƩDžǁƐ

ÛȍÅţȁ ȡŋ Ōŋ 10-5 Ž Ûmonograph ģấşÀζģȁ Ž ȡĦĦ ζȽ Åŧõ ÛĞĿüζĜŘŀȇ Ğȹşàζŋ ÛģấÅţȁ ȡŋ ĞĿŧõ ȁȁØǩ

[illegible] TS (~70 [illegible]) hydrochloric acid [illegible] ammonium chloride [illegible] 10 [illegible] 50 [illegible] Mordant Black 11 indicator mixture R [illegible] 100 [illegible] TS 10.0 [illegible] buffer TS [illegible] VS (0.05 [illegible]) disodium edetate [illegible] VS (0.05 [illegible]) disodium edetate [illegible] 1 [illegible] .Mg [illegible] 1.215 [illegible]

Zinc [illegible]

[illegible] 10-5 [illegible] monograph [illegible] TS (~300 [illegible]) acetic acid [illegible] xylenol orange indicator [illegible] 50 [illegible] 50 [illegible] (5 [illegible]) methenamine R [illegible] mixture R [illegible] VS (0.05 [illegible]) disodium edetate [illegible] disodium edetate [illegible] 1 [illegible] .Zn [illegible] 3.268 [illegible] VS (0.05 [illegible])

NON-AQUEOUS TITRATION [illegible]

[illegible] bases [illegible] acids [illegible] hydroxyl [illegible] hydrogen [illegible] ions [illegible] recognize [illegible] Arrhenius [illegible] Bronsted [illegible] proton acceptor [illegible] proton donor [illegible] electron [illegible] Lewis [illegible] neutralization [illegible] pair [illegible] coordination bond [illegible]

[illegible] (H_3O^+) hydronium ion [illegible] acetic [illegible] protophilic [illegible] .acid anion [illegible]

[illegible] proton [illegible] ($CH_3COOH_2^+$) acetonium ion [illegible] acid

[illegible] perchloric [illegible]

.nitric [illegible] hydrochloric [illegible] sulfuric [illegible] hydrobromic [illegible]

[illegible] acetic acid [illegible]

[illegible] ethylenediamine [illegible] base [illegible]

[illegible]

[illegible] leveling effect [illegible]

[illegible]

[illegible] butylamine [illegible] pyridine [illegible] phenol [illegible]

[illegible]

[illegible] potassium methoxide [illegible]

[illegible] lithium methoxide [illegible] sodium methoxide [illegible]

.tetrabutylammonium hydroxide

[illegible]

[illegible]

[illegible] physiologically active [illegible]

[illegible] .titrant [illegible]

[illegible] pharmaceutical preparations [illegible] ingredient [illegible]

.carriers [illegible] excipients [illegible]

[illegible] acid halides [illegible] types [illegible]

[illegible] amino acids [illegible] carboxylic acids [illegible] acid anhydrides [illegible]

[illegible] phenols [illegible] imides [illegible] xanthines [illegible] barbiturates [illegible] enols

[illegible] amins [illegible] .sulfonamides [illegible] pyroles

[illegible] quarternary ammonium [illegible] hetrocyclic [illegible]

[illegible] inorganic acids [illegible] alkali salts [illegible]

[illegible] halogen acids [illegible]

halide ion [illegible] mercuric acetate [illegible] acetic anhydride [illegible]

[illegible] .unionized mercuric halide [illegible] acetylatable groupings [illegible] .crystal violet [illegible] malachite green [illegible].

[illegible] volumetric [illegible] basic compound [illegible] glacial acetic acid [illegible] perchloric acid [illegible] dioxin [illegible] .methanol-toluene [illegible] lithium methoxid [illegible] tetrabutylammonium hydroxide [illegible] sodium methoxide [illegible] gelatinous [illegible].

[illegible] atmosphere [illegible] 1 [illegible] 0.1 [illegible] 0.01 [illegible] blank [illegible].

[illegible] .potentiometrically [illegible] calomel [illegible] reference [illegible] electrode [illegible] lithium perchlorate [illegible] salt bridge [illegible] acetic acid TS [illegible] crystal violet [illegible] establishing [illegible] *V* [illegible] electromotive force [illegible] *E* [illegible] *dE/dV* [illegible].

[illegible] coefficient [illegible] compensant [illegible] expansion

standardized

RECOMMENDED PROCEDURES

Method A

crystal neutralized glacial acetic acid R1

blank violet/acetic acid TS

determination indicator

mercuric acetate/acetic acid TS 10

TS 3-2

monograph R1

titrant standardization TS

potentiometrically

electrode

saturated calomel cell (TS 350)

(t_1) (t_2)

assay $[1 + 0.001 (t_1 - t_2)]$

Method B

determination

.ŏäζŢÅæ gÄÅÅĤţä ÕəÅè ɂŸ3Ů åζDZζţä ƘDZşÅϘÅöä òäÆϘèä Ǝ3 ƪəŸɧ ŎÒÎæ Ȭöæ

Ȭöæ ɈÅõ äæŮ åÅÅŀş ȸÅÊŀ ÛÅĦÎţä ÇÅΘ ÅÅφŮ òÆĦϘÊţä ÆΛØţä ȸɧ ÆèÅÅɧ ƪDzǵ Ž ǴòζĦÅţä gåÅţä āäØŀ ÆŁÅÎöä ƘĦĦ ʔÅDzŀ .ÅĦÎţä ɈζŸö ÆèÅÅţä òÆÆϘöä ʔøϘǵ ÅÅĦŀ .gåşÅζǵä Ž ȸĦĦɧ ζŁ ÅŧÕ òζŸǂä ÅȐĦŀ şŮ ÛÅΛøşÅȓ .gåÅţä ŎDZɉ ȸĦĦɧ ζŁ ÅŧÕ ÅĦÎţäş ¢ÊÅφ ÆΛØţä òÅŧĦϘèÅæ gÅÅĤţä òζŸȚ ȄĦÖŀ .ǴΛøşÅȓ ğÅĦĦĦÔĸ ǴΛŮ ʔÅDzŀş ÅĦÎţä ȣØĦŀ Ûpotentiometrically ÆȚƨä āÅĦÖŧê equivalence ǘζÅÒϘöä ǴÛȬφ established ȄèǘŀÅɧÆΛ3 .ÆȚƨä āÅĦÖŧê gÅÅĤţä òζŸȚ ȄĦÖŀş òζŸǂä òäÆĦϘèä ʔÅƶ ȬöØȬş

ŎĦɧζöÅÒöä ȸɧ reference electrode ɄĦDZÅɧ ɄøæÅȚÕ ʔÅÊɧş ɄDZÅDZà electrode ɄøæÅȚÕ ʔÅÊɧ ŎŧĦϘÊŀ aqueous potassium chloride ɄəÅţä ÿζĦèÅŀζǴöä ÆΛøζŸÕ òζŸĦɳ òäÆϘèȓä ¢ɧζ Ź ɃØöä saturated calomel ȜĦÎţä ŎĦɧζöÅÒöä ʔÅÊɧ ƘæǴŸòζŸö ɈζÒΛ ɈŮ Ǣƶ .R òζφŸţä Ž ÿζĦèÅŀζǴöä ÆΛøζŸÕ ȸɧ ȜĦÎɧ òζŸȚ TS (ò/ȟ 3.50) ɃÅȣòŮ òÅȬϘφä ÕÅÅŁ ɈζÒΛ ɈŮ Ǣƶş ǴȐÅÅÅɧ electrical resistance ǴĦæÅȚÕ ǴɧşÅȬɧ gÅÅĤţä ÕəÅèş ɄøæÅȚÒöä ʔÅÊţä ÿÅȚφş ÆȚƨä āÅĦÖɧ Ƙæ ǴŸòζöä ȸÒĸ Ƀ Åɧ ƘÛǹ øäÅȬϘèäÿÆ3 ǰϘÅÅ ɈŮ ȸÒŧŀ .ʔÅǹĦ ƂŮ ǴȚDZ ȸɧ ÕəÅÊŸö .ɈζĦÅÔţä ğÅŧĦŸĦĸ 3ɧ ȨζäζϘÅæ Ǵ3ζΛÔɧ ɄøæÅȚÒöä

NITRITE TITRATION ǀĭþĦÅȊȊ ƔþĭƑƔÅŽ

aromatic amines ǴĦĸÅɧşøɉä ğÅÆɧɉä ǴÊÅȬɧ ŎDZɉ ÎÅǹ ŎÒÎæ ŎŧĦϘÊŀ gÅÅĤɧ ǴȬΛÅù ɄŁ ĶÅÅϘÅöä gÅÅĤɧ .ǴĦöşɉä

gÅÅĤɧ öÅ3ş ȸɧ ĶÅÅϘÅöä gÅÅĤɧ ŎDZɉ electrometric ɄøæÅȚÒöä āÅĦȬöä öäÅDZŮ Ž gåÅ3 ŎŧĦϘÊţä àÅȚƨä ÆȭÅÅ ɈζÒΛ ɈŮ Ǣƶ .ǴǴèÅÅɧ circuit gøäå ƂŮ ƘöζòζɧɈ platinum ƘĶŸǴöä ȸɧ ƘĦæÅȚÕ ƘÅÅÊɧ ʔŸ3 ɃζϘ3 dzζϘÅɧ øÅĦϘöä āÅĦę ŎDZɉ device gÂĦȚDZ gøäÆöä ȸŧȐϘĸ ɈŮ Ǣƶ .Ķöζζ ɄŸĦɧ 100-50 ȸɧ potential ȸɧÅÕ ȧÅζ ƘΛÅÊŧŸö .indicating needle gƘÎɧ gÅæüæ gåÅ3 gåşÅɧ ÛĶǴɳŮ ζφÅφ 1- 0.1 ȸɧ ǴĦèÅÊǵ 3ɧ current

şŮ Ûmagnetic stirring ɄÊĦùÅÅȣŸɧ ȬÅĦɧ şŮ ǴǴèÅÅɧ mechanical ǴĦÒĦφÅÒĦɧ gÂĦȚDZê gÅÅĤţä öÅ3ş åşÅŀ ɈŮ Ǣƶ ǴĦæÅȚÒöä ɃøÅÊţä ÆĦĦ .òζŸǂä äØŁ ȝÅŧǿ òζŸǂä òŸǹ ȸɧ nitrogene ƘDZşÅϘÅöä øşÅţ ɈÅÅDZ òÅŧĦϘèä ȸÒŧŀ ǴÅĦȚφ ɃøÅÊţä ɈζÒĸ ɈŮ Ǣƶ ÛòÅŧĦϘèä ŎÕ Ŏǵş .ǴǴèÅÅɧ ƪŸɧ 20 ¢öζùş ƪŸɧ 0.5 ÇÅÛę ƘĶŸæ ȬŸè ȸɧ Ǵ3ζΛÔţä ÅÅφŮ ¢ĦöŮ ȤĦȓǐ ɃØöä Û(ò/ȟ 1000~) nitric acid TS ƂÅȣöä ȬΛÅϘÅöä Ȑþ òζŸȚ Ž Ɉäζφ gÆĦö ÅȚÊÛȡ ǴÛèäζæ .ŏÅţÅæ ŎɧÅÕ ŎÒÎæ ÅȚÅÛì ƪϘΛ Ż ȸɧş Ûferric chloride R ȬΛÆΛÆƩä ÆΛøζŸÕ ȸɧ Ŏɧ/ȠŸɧ 1 ǴæäÅȩ

RECOMMENDED PROCEDURE ŇĴŀ Ĭ Ţ ǍdžǃƒƑ ǅƒƨɳǗƒ

ȣÅȐŀ ÛgÅÅĤţä öÅ3ş Ž öÅţä ȸɧ Ŏɧ 50ş TS (ò/ȟ 250~) ȬΛøζŸÕşøÆĦȚä Ȑþ òζŸȚ ȸɧ Ŏɧ 20 3ȓζŀ

[illegible] catalyst [illegible] (0.1 [illegible]) sodium nitrite VS [illegible] 15 [illegible] burette tip [illegible] .°ÿ 15 [illegible] vortex [illegible] 0.1 [illegible] 1 [illegible] deflects [illegible] 1 [illegible] reagent [illegible]

[illegible]

DETERMINATION OF WATER BY THE KARL FISCHER METHOD

[illegible] Karl Fischer [illegible] anhydrous [illegible] iodine [illegible] sulfur dioxide [illegible] pyridine [illegible] .atmospheric moisture [illegible]

[illegible] gas inlet tube [illegible] vent tube [illegible] burette tip [illegible] desiccant [illegible] side arm [illegible] TS [illegible] .airtight [illegible] .automatic burette [illegible]

[illegible] electrical circuit [illegible] V 2 [illegible] V 1.5 [illegible] platinum electrodes [illegible] microammeter [illegible] .Ω2000 [illegible] resistance [illegible] 15-10 [illegible] 50-30 [illegible] .voltametric [illegible]

[illegible] polarizing current [illegible] .microvoltmeter [illegible] potential difference ([illegible]) [illegible] .voltage [illegible] plotting [illegible] graphically [illegible] .potential [illegible] versus

RECOMMENDED PROCEDURES [illegible]

A [illegible] **Direct titration** [illegible]

[illegible] dehydrated methanol R [illegible] 20 [illegible] .TS [illegible] 1 [illegible] .Karl Fischer reagent TS [illegible]

B [illegible] **Backtitration** [illegible]

[illegible] dehydrated methanol R [illegible] 10 [illegible] .TS [illegible] TS [illegible] 1 [illegible] 1 [illegible]

[illegible] R [illegible] TS [illegible] 2.5 [illegible]

DETERMINATION OF METHOXYL [illegible]

[illegible] methoxy-groups [illegible] methyl iodide [illegible] distilled [illegible] hydriodic acid [illegible] .titrimetrically [illegible]

Apparatus [illegible]

[illegible] 25 [illegible] flask [illegible]

[illegible] .carbon dioxide [illegible] 1 [illegible]
[illegible] 9 [illegible] 25 [illegible] condenser
[illegible] 5 [illegible] 2 [illegible] scrubber device
[illegible] .TS (ὀ/ὴ 50) antimony sodium tartarate [illegible]
[illegible]

RECOMMENDED PROCEDURE [illegible]

[illegible]
TS (ὀ/ὴ 970~) [illegible] 5 melted phenol R [illegible] 2.5 [illegible]
[illegible] 6 [illegible] TS [illegible]
[illegible] R [illegible] 6 [illegible] 4 [illegible]
[illegible] R [illegible]
[illegible] mantled microburner [illegible]
[illegible] 30 [illegible]
250 [illegible]
.TS (ὀ/ὴ 150) [illegible] 5 [illegible]

1080~) [illegible] 125 [illegible]
[illegible] 12 [illegible] .TS (ὀ/ὴ
[illegible] TS (ὀ/ὴ 1080~)
[illegible] 5 R [illegible] 1 [illegible] 2-1 [illegible]
[illegible] VS (ὀ/ὀ 0.1) [illegible] TS (ὀ/ὴ 100) [illegible]
VS (ὀ/ὀ 0.1) [illegible] TS [illegible]
[illegible]

.(CH_3O) [illegible] 0.5172 [illegible] VS (ὀ/ὀ 0.1) [illegible] 1 [illegible]

DETERMINATION OF NITROGEN [illegible]

RECOMMENDED PROCEDURES [illegible]

A [illegible] **Procedure for macrodetermination** [illegible]

[illegible] 1 [illegible] 200 [illegible] 10 [illegible] nitrogen- ([illegible] 1760~) [illegible] copper (II) sulfate R [illegible] free sulfuric acid TS [illegible] 30 [illegible] granulated zinc R [illegible] 85-75 [illegible] 25 [illegible] R [illegible] 2 [illegible] R [illegible] 15 [illegible] boric [illegible] 16 [illegible] VS ([illegible] 0.005) [illegible] ([illegible] 50) acid TS [illegible] TS [illegible] N [illegible] 1.401 [illegible] VS ([illegible] 0.05) [illegible] 1 [illegible]

B [illegible] **Procedure for microdetermination** [illegible]

[illegible] 3 [illegible] 1760~) [illegible] 1 [illegible] TS ([illegible] 190) copper (II) sulfate [illegible] 10 [illegible] R [illegible] 1 [illegible] 10 [illegible] TS ([illegible] digestion tube [illegible] 1 [illegible] selenium R ([illegible] 400~) [illegible] 6 [illegible] microdistillation [illegible] 50) TS [illegible] 5 [illegible] 7 [illegible] TS [illegible] TS methylthionium [illegible] 5 [illegible] VS ([illegible] 0.015) [illegible] VS ([illegible] 0.015) [illegible] 1 [illegible]

[illegible] 0.210 [illegible] N.

DETERMINATION OF IODINE VALUE [illegible]

[illegible] 100 [illegible] %70 [illegible]

[illegible]	Iodine value [illegible]
1.0	20 [illegible]
0.25 - 0.5	60 - 20
0.15 - 0.25	100 - 60
0.15 - 0.10	100 [illegible]

RECOMMENDED PROCEDURE [illegible]

[illegible] 300 [illegible] 500 [illegible] 15 [illegible] carbon R tetrachloride [illegible] 30 [illegible] iodine bromide TS [illegible] 25 [illegible] 150 TS (80 [illegible]) [illegible] 20 [illegible] TS [illegible] VS (0.1 [illegible]) [illegible] (*a*) [illegible] VS (0.1 [illegible]) [illegible] (*b*) [illegible]:

$$\frac{(b-a) \times 0.01269 \times 100}{\text{[illegible]}} = \text{[illegible]}$$

[illegible]

DETERMINATION OF PEROXIDES IN FIXED OILS

RECOMMENDED PROCEDURE [illegible]

15 [illegible] 3 [illegible]

.ĞĘDZİDZĀ gấäÆè ğäæ Ōŋ 250 ǈDzШ ĞŸDZzǵ Ž R ɄDzŸǯöä ŌĘǪĘèɟä Ȑþ ȸŋ Ōŋ 30ş R ÿøźzşøzŸÓöä ȸŋ Ōŋ
ÛĞŸDZzǷä ÆÊŀ ÛöÅţä ȸŋ Ōŋ 1 Ž R ÿzĘèÄkzĞöä ÆÅấzÅ ȸŋ ȟ 1.3 ȸŋ ȷzÒŋ ƘȒĦǪöä ȥäÅü òzŸȚ ȸŋ Ōŋ 1 ȣÅȒŀ
ÛŋȒÁŀ ÛöÅţä ȸŋ Ōŋ 100 ȣÅȒŀ .ĘǝÅęấ 3 gÆŋ ÿŸȚöä Ž ÅĠφÅDZ ȭÅǪkş ȤĘÛö ŽÅÅǪöä Ʉŋäşấ ȷÅÅÄDZ ĞÛèäzæ ȥÂŧŀş
ấzDZş ȷşấ ĞĘŸŧĦöä øÄÒŀ .ÄĦÎŧȭ TS ÅÎÅöä òzŸȚ ấzDZzæ ÛVS (ò/òzŋ 0.01) ÿzÅấzÔöä ğÅÅŸèzĘǭ òzŸĦŧê ÅÅÅĦŀş
.gấşÄzǵä Ž ĞÅĘĦŋ ĞÅÆǷä ĞŧĘŌöä ÛƘĶÅÅĦţä Ƙæ ȧÅÅöä ÆÊĦŀş ÅŁøÅǪǹä ấäÄţä gấÅţä

DETERMINATION OF SAPONIFICATION VALUE DžǷĘȚĦǁǁĘ ħDžĭƾ DžĭĭÿĦ

fatty acids ĞÅŁÆöä ȏÅþɟä òäÆĦǪèɼ ĞŋäŸöä ÿzĘèÄkzĞöä ÆĘÊȭşøÆĘŁ ğÅŋäÅȡ ɄŸĘŋ ấÆȝ ɄŁ ȸǷÔǪöä ĞŧĘę
.gấÅţä ȸŋ ȟ 1 øäÆŌţ ĞŸŋÅÒöä hydrolysis ĞȚŧŸǷä ȸȝ ĞɵÅÅöä

ȷzÒÅ blank ÆŁÅÎöä gÄÅĦŋ Ž ÅŧȭÛgÄÅĦţä ŌDZɟ Ōŋ 50 ǈDzШ ĞǵÅĦè òÅŧĦǪèä ŌȒÅÅ Ûȣzòzţä öäÄDZqä Ž
ÆĘÊȭşøÆĘŁ ÂĘȭÄǩ ȷzÒÅ ÅŋÆÅȝ ÅŋÅǪ Ōŋ 35.5 ŌŧĦǪÊţä VS (ò/òzŋ 0.5) ŌÅøzŸȭşøÆĘȚä Ȑþ òzŸȚ ǈDzǵ
.ÙĞȒöÅæ ò/ȟ 40 zŁ ƃzφÅǯÅqä ÿzĘèÄkzĞöä

RECOMMENDED PROCEDURE Ǹħ ĬȚÅdž!ƒ ȻƒƨŋŮƒ

200 ĞäÄę ĞĦÊê ĞŸDZzǵ Ž ÛgấşÄzǵä Ž ĞÅĘĦţä ĞĘŧÒöä şÛ ÛĞĘüzĞȒŋ ĞφşäzŋÛøÅǪǹɼä gấÅŋ ȸŋ ȟ 2 ĞäÄę ȝȑzŀ
reflux (âzÒĦöä) ɄȝzDZÄöä ȤǯǪţä Ōòzŀ TS1 ÛòzφÅǯÅqä/ÿzĘèÄkzĞöä ÆĘÊȭşøÆĘŁ òzŸȚ ȸŋ Ōŋ 25 ȣÅȒŀ ÛŌŋ
ĞŸDZzǷä ğÅÅzǪĦŋ ȭÅĦŀ ÛgấşÄzǵä Ž ĞÅĦĦţä gÆţä şÛ ÛĞŌĘęấ 30 gÆŋ ȹÅȡ ɄǝÅŋ ÿÅþ Ž ȸÁÊŀş Ûcondenser
òzŸĦŧê ɃzŸŌöä gấÅà ÄÅĦǩş ǷzzTS òzφÅǯÛ/ƘÅäÅǪz òzÆÅöä òzŸȚ ȸŋ Ōŋ 1 ȣÅȒŀş ÜÄǩäzǪŋ ŌÒÎæ ȷäøşÆöÅæ
VS (ò/òzŋ 0.5) ŌÅøzŸȭşøÆĘȚä Ȑþ òzŸȚ ğäÄǪö ɄŸĘŋ ấÆȝ ŌDzÊŀ .VS (ò/òzŋ 0.5) ŌÅøzŸȭşøÆĘȚä Ȑþ
Ȑþ òzŸȚ ğäÄǪö ɄŸĘŋ ấÆȝ ŌDzÊŀş ÅŁøÅǪǹä ấäÄţä gấÅţä ȷşấ ĞĘŸŧĦöä øÄǪÒŀ .(*a*) sample ĞÅĘĦöä gÄÅĦţ ŌŸȚǪÊţä
:ĞĘöÅǪöä formula ĞȣĘÔöä ȸŋ ȸǷÔǪöä ĞŧĘę ÆÊĦŀ .(*b*) òäÆĦǪèɼä ŌDZɟ ŌŸȚǪÊţä VS (ò/òzŋ 0.5) ŌÅøzŸȭşøÆĘȚä

$$\frac{(b-a)\times 0.02805 \times 1000}{(\text{ÿäÄȣöÅæ})\ \text{gấÅţä}\ \text{ȷäş}} = \text{ȸǷÔǪöä ĞŧĘę}$$

DžǷĘȚĦǂǁ ħǂǤƒšǁĘ þĭȝ ƔǫƑDžǁǁĘ DžĭĭÿĦ

DETERMINATION OF UNSAPONIFIABLE MATTER

şÛ ğzÅÂöä Ž gấzDZzţä ấäzţä ŌŸǩ ƂÛ "unsaponifiable matter ȸǷÔǪŸö ĞŸæÅÒöä Ƙȡ ấäzţä" term ĠǷǮÔħ ƘÎŀ
.ether Ƙǭɟ Åæ ÎŸÁǪèŸö ĞŸæÅŌöäş alkali hydroxides ğÅÅzŸŌöä ğäÆĘÊȭşøÆĘȚê ȸǷÔǪǩ ɼ Ʉøǭöä ȷzŁÆöä

... separator ... fat ... carbonate-free sodium hydroxide ...

DETERMINATION OF ACID VALUE

RECOMMENDED PROCEDURE

50 … 250 … 10 …

TS (…/… 750~) … TS … 1 … VS (…/… 0.1) … VS (…/… 0.1) … 15 … (a) …:

$$\frac{\alpha \times 0.00561 \times 1000}{(\ldots)} = \ldots$$

BIOLOGICAL METHODS ƕĭƜǋǁǋĭƓǁɛ ƼƥǓ’ǁɛ

[illegible]

MICROBIOLOGICAL ASSAY OF ANTIBIOTICS

[illegible] International Biological Standard [illegible] microorganism [illegible] International Biological Reference Preparation [illegible] International Chemical Reference Substance [illegible] validated [illegible] inhibition [illegible] .assay [illegible] dilutions [illegible] .turbidimetric [illegible]

[illegible] International Unit [illegible] International [illegible] International Biological Standard [illegible] WHO [illegible] Biological Reference Preparation [illegible] Biological Standardization [illegible] .vial [illegible] ampoule [illegible]

[illegible]

RECOMMENDED PROCEDURE [illegible]

[illegible] 4-3 [illegible] Petri dishes [illegible] inoculum [illegible] culture medium [illegible]

[illegible] agar [illegible]

[illegible] inoculated [illegible]

[illegible] dose [illegible]

[illegible] 100 [illegible] 1 [illegible]

[illegible] vegetative [illegible]

[illegible] inoculation [illegible] 50 - 48 [illegible] molten agar medium [illegible]

[illegible] flat bottoms [illegible]

[illegible] 4 [illegible] 30 [illegible]

10 [illegible] sterile [illegible]

stainless [illegible] 5 [illegible]

[illegible] 10 - 8 [illegible] steel

[illegible]

[illegible] logarithm [illegible] 1:2 [illegible]

[illegible] rectilinear [illegible]

[illegible] Latin square [illegible]

[illegible] pipette [illegible]

[illegible] 1.5± [illegible] 16 [illegible] 0.1 [illegible] bioassays.

[illegible] (4 [illegible]) [illegible] strain [illegible] designations [illegible]:

NCTC – [illegible] Colindale [illegible]

NCYC – [illegible] Yeast [illegible] Brewing [illegible] Nutfield [illegible] Redhill [illegible] Surrey [illegible]

ATCC – [illegible] Rockville [illegible] 20852 Maryland [illegible]

[illegible]

Precision of the assay [illegible]

[illegible] fiducial [illegible] limits (P = 0.95) [illegible]

Calculation of results [illegible]

[illegible]:

1. *Specification for the quality control of pharmaceutical publications (Second edition of International Pharmacopoeia)*, Geneva, World Health Organization, 1967, Appendix 45: Biological assays and

tests.

2. C. I. BLISS: *Statistics of bioassay*, New York, Academic Press, 1952.

3. C. I. BLISS*: Statistics in biology*, vol. I, New York, McGraw Hill, 1967

4. C. I. BLISS: *Statistics in biology*, vol. II, New York, McGraw Hill, 1970

5. D. J. FINNEY: *Statistical methods in biological assays*, London, Griffin, 1964.

6. W. HEWITT: *Microbiological assay*, New York, Academic Press, 1977.

7. J. PHILLIPPE: *Les methods statistique en pharmacie et en chimie,* Paris, Masson, 1967.

ǦƖşǻɟ ƘǩǞèǻ ȸȠ ǼƖǼǶǒ Ž Ǵʐòʐȵ ǦƖʐǼƩ ğǻǻŔȽ ǦǼǱʐǒʐǼşǞȮţ ǦÊƖǞŎȽ ɄǝǞÔǵq ǈǼǑǓ ǦǑŪţ ȧǞÛǒ
.ǦǼȽǼçqş ǦǼǜʐǒ

ǦƖǻǞǞǒ ǦƖʐǼƩ ğǻǻŔţ ǦÊƖǞŎȟ ȓşǞìş ǦǞƩ øǞǦǹȓ ğǞǝǞǭ .4 ȯşǼɘ

ǥøǞǞǵ Ǧǲʐøǻ (°ÿ) ȸŔƩ	ğǻǼǵʐǒ şǓ ɉàʐǒ) ÂǼõǞǒ ᵇ(Ŏȵ 1 Ǒõ Ž ǦǼşǼǒ	Ûğ ǞǞÊǞǒ ǦǝøǻǻTS ÛªǒǞŁǞǦǒ ÛǦȽǼǑǶǒ	ÜǨǦǞÊţ ǦǼǝǞȚǞǒ ǒǞŁǞǦǒ	øǞǦǹȓ Ʉǵ ȸǝǞõ Test organism	ɃʐǼƩ ǻǞŔţ Antibiotic
37 35	IU ǦǼşǻ ǥǼǵş 4-1	7.0	ÜCm1 7.1 7.0	*ǒǞǞÔǒ ǥǞǞǑţ* Micrococcus luteus NCTC 7743; ATCC 10240	ƙèǞǞǼèǞǦǒ Bacitracin
31 30	IU ǦǼşǻ ǥǼǵş 4-1	6.0	ÜCm1 6.6 6.5	*ǒǞǞÔǒ ǥǞǞǑţ* NCTC 7743; ATCC 10240	
35 32	ÿǞǞȡ şǞŎȵ 40 10	6.0	ÜCm1 6.6 6.5	*ǦǼŁØǒ ǦƖǻʐǑǞǶǒ* *Staphylococcus aureus* NCTC 6571; ATCC 9144	ƙÊŎǞǞǼÊǒ Cefalexin
35 32	ÿǞǞȡ şǞŎȵ 40 10	6.0	ÜCm1 6.6 6.5	*ǦǼŁØǒ ǦƖǻʐǑǞǶǒ* ATCC 6538-P	
35 32	IU ǦǼşǻ ǥǼǵş 2 0.5	6.0	ÜCm1 6.6 6.5	*ǦǼŁØǒ ǦƖǻʐǑǞǶǒ* ÜNCTC 6571 ATCC 9144	ƙǩʐǞǞǼÊǒ Cefalotin
35 32	IU ǦǼşǻ ǥǼǵş 2 0.5	6.0	ÜCm1 6.6 6.5	*ǦǼŁØǒ ǦƖǻʐǑǞǶǒ* ATCC 6538-P	
39 37	IU ǦǼşǻ ǥǼǵş 20 2	4.5	ÜCm1 6.6 6.5	*ǦǼǼȠʐǦǒ ǦƖʐÔǼǒ* *Bacillus pumilus* ÜNCTC 8241 ATCC 14884	ƙŸÖèǞǞǩøʐŸÖǒ Chlortetracycline

ġøäÀǵ ĞDŽøấ (°ӯ) ȸȒ̦Σä	ğåÆǵʐöä şǗ ɉàʐöä) ÂĿÕÀʠöä ᵇ(Ōŋ 1 ŌÕ Ž ĞĿöşÆöä	ÛğÅÀÊǺöä Ğəøäấ TS ÛªŏÅĿÅĜöä ÛĞȶĿÕȞöä	ÜǨĜǺʠÊʯä ĞĿəÅƬÅöä ŏÅĿÅĜöä	øÅĜʠǹɼä Ʉǵ ȸəÅÕ Test organism	ɃʐĿΣä åÅȒʯä Antibiotic
33 30	IU ĞĿöşấ ǥÆǵş 0.2 0.05	4.5	ÜCm1 6.0 5.9	*ĞĿĦȶÎöä ĞÅʐÔĿǑöä* *Bacillus cereus* ATCC 11778	
39 37	ӱäÀɖ şÀȮŋ 20-5	7.0	ÜCm1 6.6 6.5	*ĞÕĿȩÀöä ĞÅʐÔĿǑöä* *Bacillus subtilis* ÜNCTC 8236 ATCC 11774	ƙĿĿèÅÊÕʐŸÒöä Cloxacillin
35 32	ӱäÀɖ şÀȮŋ 8-2	6.0	ÜCm1 6.6 6.5	*ĞĿĜȽØöä ĞÅấʐÕÅȞöä* ATCC 6538-P	
39 37	ӱäÀɖ şÀȮŋ 10-2.5	6.0	ÜCm1 6.6	*ĞĿĜȽØöä ĞÅấʐÕÅȞöä* ÜNCTC 6571 ATCC 9144	ƙŸèÅÊÕʐŸÒÅấ Dicloxacillin
35 32	ӱäÀɖ şÀȮŋ 8-2	6.0	ÜCm1 6.6 6.5	*ĞĿĜȽØöä ĞÅấʐÕÅȞöä* ATCC 6538-P	
39 37	IU ĞĿöşấ ǥÆǵş 25-5	8.0	ÜCm1 8.1 8.0	*ĞĿŸĿŋʐĜöä ĞÅʐÔĿǑöä* ÜNCTC 8241 ATCC 14884	ƙÊĿŋşÀǯÅøɼä Erythromycin
37 35	IU ĞĿöşấ ǥÆǵş 1.5-0.5	8.0	ÜCm1 8.1 8.0	*ŏäÅÂÔöä ǥÅĿÒʯä* ATCC 9341	
39 37	ĞĿöşấ ǥÆǵş 14-2	8.0	ÜCm1 8.1 8.0	*ĞĿŸĿŋʐĜöä ĞÅʐÔĿǑöä* ÜNCTC 8241 ATCC 14884	ƙÊĿŋʐĿÅöä Neomycin
37 35	ĞĿöşấ ǥÆǵş 20-2	8.0	ÜCm1 8.0 7.8	*ĞĿĜȽØöä ĞÅấʐÕÅȞöä* ATCC 29737	
37 35	ĞĿöşấ ǥÆǵş 2.05	8.0	ÜCm1 8.1 8.0	*ĞÅşÄÎĿöä ĞÅấʐÕÅȞöä* Staphylococcus epidermidis ATCC12228	
33 30	ĞĿöşấ ǥÆǵş 5-1	6.0	ÜCm1 6.6 6.5	*ĞÕĿȩÀöä ĞÅʐÔĿǑöä* ÜNCTC 10315	ƙèʐĿʐʐʐÅöä Novobiocin
35 30	ĞĿöşấ ǥÆǵş 50-10	6.0	ÜCm1 6.6 6.5	*ŏäÅÂÔöä ǥÅĿÒʯä* ATCC 9341	
37-35	ĞĿöşấ ǥÆǵş 300-25	*cø*	ÜCm3 6.2 6.0	*ĞÅʐĦɐä ŏäKÒÊöä* *Saccharomyces cervisia* ÜNCYC 87 ATCC 9763	ƙÅǬÊÅöä Nystatin

[illegible] (°C) [illegible]	[illegible] [b] [illegible]	[illegible] TS [illegible]	[illegible]	[illegible] Test organism	[illegible] Antibiotic
39 37	[illegible] 10-2.5	7.0	Cm1 6.6 6.5	[illegible] NCTC 8236 ATCC 11774	[illegible] Oxacillin
35 32	[illegible] 8-2	6.0	Cm1 6.6 6.5	[illegible] ATCC 6538-P	
39 37	[illegible] 20-2	4.5	Cm1 6.6 6.5	[illegible] NCTC 8241 ATCC 14884	[illegible] Oxytetracycline
33 30	[illegible] 2-0.5	4.5	Cm1 6.0 5.9	[illegible] ATCC 11778	
37 35	[illegible] 100-20	TS3 6.0	Cm2 7.3 7.2	[illegible] *Bordetella bronchiseptica* NCTC 8344 ATCC 4617	[illegible] Polymyxin B
37 35	[illegible] 200-50	7.2	Cm2 7.3 7.2	[illegible] NCTC 8344 ATCC 4617	
37 35	[illegible] 100-5	7.2	Cm1 6.6 6.5	[illegible] *Escherichia coli* ATCC 10536	
39 37	[illegible] 20-5	8.0	Cm1 8.0 7.9	[illegible] NCTC 8236 ATCC 11774	[illegible] Streptomycin
37 35	[illegible] 15-3	8.0	Cm1 8.1 8.0	[illegible] ATCC 6633	
39 37	[illegible] 20-2	4.5	Cm1 6.6 6.5	[illegible] NCTC 8241 ATCC 14884	[illegible] Tetracycline
33 30	[illegible] 2-0.5	4.5	Cm1 6.0 5.9	[illegible] ATCC 11778	

a [illegible] TS,TS1 [illegible] TS2.

b [illegible]

c [illegible] dimethylformamide R [illegible] TS3 6.0 [illegible].

Culture media [illegible]

[illegible] (4 [illegible]) [illegible] (Cm) [illegible] .(167 [illegible]) "List of reagents, test solutions and volumetric solutions [illegible].

Preparation of inoculum [illegible]

.Bacillus subtilis [illegible] *Bacillus pumilus* [illegible] *Bacillus cereus* [illegible] 6.6-6.5 [illegible]) Cm1 [illegible] 39-37 [illegible] 7 [illegible] 1 [illegible] manganese sulfate R [illegible] 1 [illegible] 70 [illegible] 30 [illegible] sterile [illegible] 1 [illegible] 10^8 - 10^7 [illegible] spores [illegible] 4 [illegible].

[illegible] *.Bordetella bronchiseptica* [illegible] 37-35 [illegible] 6.6-6.5 [illegible]) Cm2 [illegible] 1 [illegible] opacity [illegible] saline TS [illegible] sterile [illegible] 650 [illegible] %50 [illegible] 4 [illegible].

[illegible] vehicle [illegible] inoculum [illegible] TS2 [illegible] peptone [illegible] 70– [illegible].

6.6-6.5 [illegible]) Cm1 [illegible] *.Micrococcus luteus* [illegible] saline TS [illegible] 37-35 [illegible] %80 [illegible] 50 [illegible] 1 [illegible] 4 [illegible] 650 [illegible] vehicle [illegible] inoculum [illegible] TS2 [illegible] 1) [illegible] peptone [illegible] 70– [illegible].

[illegible]) Cm3 [illegible] *.Saccharomyces cerviciae* [illegible] saline TS [illegible] 37-35 [illegible] 6.2-6.0 [illegible] %50 [illegible] 1 [illegible]

[illegible] 650 [illegible] 4 [illegible]

[illegible] TS2 [illegible] 70– [illegible]

[illegible] *Staphylococcus aureus* [illegible] Cm1 [illegible] 6.6- [illegible] 6.5 [illegible] 37-35 [illegible] saline TS [illegible] %50 [illegible] 1 [illegible] 650 [illegible]

[illegible] TS [illegible] 5 [illegible] 70– [illegible]

STERILITY TESTING OF ANTIBIOTICS [illegible]

[illegible] microorganisms [illegible]

Test conditions [illegible]

[illegible] aseptic [illegible] air filters [illegible] germicidal [illegible] disinfecting [illegible] disinfecting aerosols [illegible] laminar flow [illegible] environment [illegible] static free clothing [illegible] hood [illegible] settle [illegible] particulate [illegible] slit-sampling [illegible] plates [illegible]

Membrane filtration apparatus [illegible]

[illegible] porosity [illegible] nominal [illegible] 0.45 [illegible] 47 [illegible] 700 [illegible] 90 [illegible] 75-55 [illegible]

[illegible]

Sampling [illegible]

[illegible]

Culture media [illegible]

[illegible] fungi [illegible] bacteria [illegible] anaerobic [illegible] aerobic [illegible] variety [illegible] manufacturing [illegible] mercaptoacetate [illegible] criteria [illegible] (thioglycolate [illegible] Cm4) [illegible] (Cm5 [illegible]) [illegible] strains [illegible] (100 [illegible]) [illegible] 24 [illegible] lot [illegible] overheating [illegible] over sterilization [illegible]

RECOMMENDED PROCEDURES [illegible]

Membrane filtration test procedure [illegible]

[illegible] (container [illegible] 6-0.3) [illegible] (TS1 [illegible] 1) [illegible] 200 [illegible]

[illegible] 400 [illegible]
[illegible] .TS1 (ȯ/ȟ 1) [illegible]
[illegible]
[illegible] TS1 (ȯ/ȟ 1) [illegible]
.penicillinase TS [illegible] (cephalosporin [illegible] penicillin [illegible]
[illegible]
[illegible] Cm4 [illegible] 100-50 [illegible]
[illegible] 100-50 [illegible]
.(soybean-casein digest medium [illegible]) Cm5

[illegible] control test [illegible]
[illegible] 100-50 [illegible]
[illegible]

Direct test procedure [illegible]

[illegible] 0.3 [illegible] 10 - 1 [illegible]
[illegible] Cm6 [illegible] 100 - 50 [illegible]
[illegible]
[illegible]) Cm7 [illegible] 100 - 50 [illegible]
[illegible]
[illegible] 1.0 [illegible] .Cm6 [illegible]
[illegible] ATCC 6538-P [illegible] 100.50 [illegible]
.°ÿ 32 - 30 [illegible] 24 [illegible] .Cm4

Incubation [illegible]

Cm4 [illegible] 7 [illegible]
Cm5 [illegible] °ÿ 32 - 30 [illegible] (Cm6
[illegible] .°ÿ 25 - 22 [illegible] (Cm7
[illegible]
[illegible]

[illegible]

Interpretation of test results [illegible]

[illegible] control [illegible]

[illegible]

UNDUE TOXICITY [illegible]

[illegible]

RECOMMENDED PROCEDURE [illegible]

[illegible] 18 [illegible] 5 [illegible] 0.5 [illegible] 22 [illegible] 48 [illegible] 5 [illegible] 48 [illegible] 15 [illegible] 5 [illegible] 20.5 [illegible] 19.5 [illegible] (48) [illegible]

TEST FOR PYROGENS [illegible]

[illegible] risk [illegible] 10 [illegible] 4 [illegible] 1 [illegible]

Test animal

... 2± ... *ad libitum* ... excite ...

... 48 ... 0.5 ...

Temperature recording

... 0.1 ... temperature- ... 6 ... sensing device ...

RECOMMENDED PROCEDURE

... 30 ... 40 ...

... 1.0 ... deviate ... 0.2± ...

[illegible] 38.0 [illegible] 39.8 [illegible].

[illegible] glassware [illegible] 250 [illegible]

[illegible] 38 [illegible] 30 [illegible]

[illegible] marginal [illegible] 3 [illegible] 10 [illegible] 1 [illegible]

[illegible] 4 [illegible]

[illegible] 3 [illegible] 30 [illegible]

[illegible]

[illegible]

[illegible] 0.6 [illegible]

[illegible] 1.4 [illegible]

[illegible] 0.6 [illegible] 1.4 [illegible]

[illegible] 3 [illegible] 8 [illegible] 5 [illegible]

[illegible] 0.6 [illegible] 3.7 [illegible]

[illegible]

[illegible]

TEST FOR HISTAMINE-LIKE SUBSTANCES (VASODEPRESSOR SUBSTANCES)

[illegible]

[illegible]

RECOMMENDED PROCEDURES [illegible]

[illegible]

[illegible] chloralose R [illegible]

[illegible] barbiturate [illegible]

[illegible] trachea [illegible]

[illegible] carotid artery [illegible]

[illegible] vagus nerve [illegible] cannula [illegible] saline TS [illegible]

[illegible] mercury manometer [illegible]

[illegible] jugular [illegible] heparinized saline TS [illegible] recording kymograph [illegible] excursion [illegible] tracings [illegible] 0.1 [illegible] (A [illegible]) [illegible] 0.05 [illegible] TS [illegible] (C [illegible]) [illegible] 0.15 – [illegible] – (B [illegible]) [illegible] 1 [illegible] 1 [illegible] histamine base [illegible] B [illegible] ([illegible] 20) [illegible] 2.7 [illegible] B [illegible] C [illegible] B [illegible] A [illegible] B [illegible].

[illegible] saline TS [illegible] 2.0 [illegible]

B [illegible] B [illegible] 1 [illegible] A [illegible] C [illegible] C [illegible]

[illegible] (*a*) [illegible] (*b*) C [illegible] B [illegible] C [illegible] 1 [illegible] 0.1) [illegible] B [illegible]

ȯzŸƮ ȸɳ C Ǧʒ Ȁʂ ä ȸɳ ƎõÜ ǦȒzȦǹ ǦæȦDzǪȅä øȦǤǪǹɟä ȯzŸƮ ȸɳ ɡǼǵäʂ ǦɅåȀz ǦʒȀDZ ǦɅÜ ǫǼHɟǨ ɟʂ Û(ȷäzɆΣä ȷȁʂ
.(ȷäzɆΣä ȷȁʂ ȸɳ ŊŸõ 1 ŌȮȯ ƙɳȦǪÊɆTä âȦȅÜ ȸɳ ȳäȀɖʂȀȮɳ 0.15) ɃøȦǼȞȼä

METHODS OF PHARMACOGNOSY ꞵĭƽʄʂy⫴ɛ !ǂϒ 5ꞵƯ

[illegible]

DETERMINATION OF ASH AND ACID-INSOLUBLE ASH

RECOMMENDED PROCEDURES [illegible]

Determination of ash [illegible]

[illegible] 3 [illegible] 450 [illegible] 450 [illegible] 1 [illegible]

Determination of acid-insoluble ash [illegible]

[illegible] 70~) [illegible] 25 [illegible] 5 [illegible] 500 [illegible] 1 [illegible]

MISCELLANEOUS ƖƑƳǋǰǆƗǅ

[illegible]

INTERNATIONAL CHEMICAL REFERENCE SUBSTANCES

[illegible]

[illegible]

- [illegible] infrared spectrophotometry [illegible]
- ultraviolet absorbtion [illegible] spectrophotometry
- [illegible]
- [illegible]
- [illegible] (automated [illegible]) [illegible]
- [illegible] gravimetric [illegible] titrimetric [illegible] non-stoichiometric [illegible]
- [illegible] optical rotation [illegible]
- [illegible] polarography [illegible]
- [illegible] fluorescence spectrophotometry [illegible]
- [illegible] microbiological assay [illegible] (151-145 [illegible])

[illegible] 3 [illegible] WHO Expert Committee [illegible]

(1975 ... 567 ...)

... International ... Pharmacopoeia ...

... WHO Collaborating Centre for Chemical Reference Substances ... Solna ... Sweden.

... Apotekens Centrallaboratorium ... 3045 ... 171 03 ... 3 ... Sweden ...
... package ...

NAMES, SYMBOLS, AND RELATIVE ATOMIC MASSES OF CERTAIN ELEMENTS

... isotope ^{12}C ... 12 ...

Element	Symbol	Relative atomic mass
Aluminium	Al	26.98
Antimony	Sb	121.75
Arsenic	As	74.92
Barium	Ba	137.3
Bismuth	Bi	209.0
Boron	B	10.81
Bromine	Br	79.90
Cadmium	Cd	112.4
Calcium	Ca	40.08
Carbon	C	12.01
Cerium	Ce	140.1
Chlorine	Cl	35.45
Chromium	Cr	52.00
Cobalt	Co	58.93
Copper	Cu	63.55
Fluorine	F	19.00
Gold	Au	197.0
Helium	He	4.003
Holmium	Ho	164.9
Hydrogen	H	1.008
Iodine	I	126.9
Iron	Fe	55.85
Lanthanum	La	138.9
Lead	Pb	207.2
Lithium	Li	6.941
Magnesium	Mg	24.31

... 1± ... 3± ...

[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
107.9	Ag	Silver [illegible]	54.94	Mn	Manganese [illegible]
22.99	Na	Sodium [illegible]	200.6	Hg	Mercury [illegible]
87.62	Sr	Strontium [illegible]	95.94	Mo	Molybdenum [illegible]
32.06	S	Sulfur [illegible]	58.71	Ni	Nickel [illegible]
232.0	Th	Thorium [illegible]	14.01	N	Nitrogen [illegible]
118.7	Sn	Tin [illegible]	16.00	O	Oxygen [illegible]
47.90	Ti	Titanium [illegible]	30.97	P	Phosphorus [illegible]
183.85	W	Tungsten (Wolfram) [illegible]	195.1	Pt	Platinum [illegible]
238.0	U	Uranium [illegible]	39.10	K	Potassium [illegible]
50.94	V	Vanadium [illegible]	101.1	Ru	Ruthenium [illegible]
65.38	Zn	Zinc [illegible]	78.96	Se	Selenium [illegible]
91.22	Zr	Zirconium [illegible]	28.09	Si	Silicon [illegible]

[illegible] 3± [illegible] 1± [illegible]

[illegible] (boron [illegible] sulfur [illegible] strontium [illegible] (lead [illegible] (calcium [illegible] .significant figure [illegible]

[illegible]

LIST OF REAGENTS, TEST SOLUTIONS, AND VOLUMETRIC SOLUTIONS

(*International Pharmacopoeia* [illegible] (TS [illegible] (R [illegible] (1 [illegible] .VS [illegible] PbTS، FeTS (CITS (AsTS (AsR [illegible] IR [illegible] Cm [illegible] .anhydrous [illegible] *System international d' Unites* (SI) [illegible]

Specifications for reagents mentioned [illegible] SRIP [illegible] .(1963 [illegible]) *in the International Pharmacopoeia* [illegible] d_{20}^{20} [illegible] *d* [illegible] SRIP [illegible] .°[illegible] 20 [illegible] °[illegible] 20

[illegible] 3.0 [illegible] **.(Acetate buffer, pH 3.0, TS) TS [illegible]3.0** [illegible] glacial [illegible] 6 [illegible] R [illegible] 12 [illegible] acetic acid R [illegible] 100 [illegible]

d~1048 [illegible](25 [illegible] 1963 [illegible]SRIP) $C_2H_4O_2$ **.Acetic acid, glacial, R** [illegible]

[illegible] R [illegible] **.Acetic acid, glacial, R1** [illegible] 1 [illegible] 20 [illegible] TS [illegible] 1760~) [illegible] 10 [illegible] 10.0 [illegible] 30 [illegible] VS([illegible] 0.0167) potassium dichromate [illegible] ([illegible] 80) potassium iodide [illegible] 1.5 [illegible] 20 [illegible] 50 [illegible] VS ([illegible] 0.1) sodium thiosulfate [illegible] TS .VS ([illegible] 0.1) [illegible] 0.6 [illegible]

300 [illegible] R [illegible] **.TS [illegible] 300~ Acetic acid** [illegible] .*d*~1.037 [illegible] 5) $C_2H_4O_2$ [illegible]

[illegible]**TS [illegible] 300~** [illegible] **.TS [illegible] 60~ Acetic acid** [illegible] .*d*~1.008 [illegible] 1) $C_2H_4O_2$ [illegible] 60 [illegible]

TS ([illegible] 60~) [illegible] **.PbTS [illegible] 60~ Acetic acid** [illegible] TS ([illegible] 60~) [illegible] 20 [illegible] 25 [illegible] 3 [illegible]

.(26 [illegible] 1963 [illegible]SRIP) $C_4H_6O_3$ **.Acetic anhydride R** [illegible]

.(27 [illegible] 1963 [illegible]SRIP) C_3H_6O **.Acetone R** [illegible]

.C_2H_3N [illegible]Methyl cyanide [illegible] **.Acetonitrile R** [illegible]

[illegible]

.ŏĺţā 3ɳ ǦĂĂШ ǯÂǪƹ :*miscibility ǦĔǱŞĂţā*

.TS ȯ ȟ 400 Acetonitrile ŎĂĂǪĔǫζǪĔèɟā

ȸɳ ȯ/ȟ 400 ǦăāĂɐ ǰķĂĂōā ȯζŸǂā Ƀζʒ .ŏĺţā ȸɳ ĦŧǱǵ1 3ɳ R ŎĂĂǪǫζǪĔèɟā ȸɳ ĦŧǱǵ 1 ǯÂŧł :*ŏăĂĎƵqā*

.C_2H_3N

.(27 ǦĦĂÔōā Û1963 ÛSRIP) **.Agar R** øĺȡɇā ŏăĂȡ

.ȼĦŧɧ $Al(OH)_3$ **.Aluminium hydroxide R** ÿζĔĂĔɳζōɟā ÆĔÊõşøÆĔŁ

.ǦĦăāĂōā CÆʒ ÛɉζŸōā ȒĔăÛ ȧζĦÊɳ :*Ƶöζōā*

.TS (ȯ/ȟ 750~) ȯζǫĺǯĂqā ȯζŸƮ Ž ɍş ŏĺţā Ž ĂĔŸŧʒ ǡāşǽ Ƙȡ :*ǦĔǫĺşǾōā*

.*d*~ 0.894 Û(31 ǦĦĂÔōā Û1963 ÛSRIP) . R ÛÂŎĂɧ ÛĂĔǫζɳÛ **TS ȯ ȟ 260~ Ammonia** ĺĔǫζɳɟā ȯζŸƮ

ȸɳ ȯ/ȟ100 ǦăāĂɐ ɃζĦĔō ƵāĂĺł ÛTS (ȯ/ȟ 260~) ĺĔǫζɳÛ ȯζŸƮ **.TS ȯ ȟ 100~ Ammonia** ĺĔǫζɳɟā ȯζŸƮ

. *d*~0.956 Û(ĺĢĂĂŎǩ ȯ/ȯζɳ 6) NH_3

ĂĺÁĢł :ƃĺǪōā øĺĢǪǹɍā ɄøǦŸł ɃǾōā TS (ȯ/ȟ 100~) ĺĔǫζɳÛ ȯζŸƮ **.FeTS ȯ ȟ 100~ Ammonia** ĺĔǫζɳɟā ȯζŸƮ

ȯζŸƮ ȸɳ Ōɳ 2ş ÛŏĺţāȸɳŌɳ 40 ȣĺȒł ÛɄǝĺɳ ÿĺþ ʔŸʒ ĦĢĂĂŎǩ TS (ȯ/ȟ 100~) ĺĔǫζɳɟā ȯζŸƮ ȸɳ Ōɳ 5

Ûmercaptoacetic acid R ŌĔǪĔèÛζǪĕĺōƘţā Ȓþ ȸɳ ɉĺĂÂÛęş FeTS (ȯ/ȟ 180) citric acid ŌĂĂǪĔÊōā Ȓþ

.ɄŸĂǫĂę ɉζō ɃÛ ǰǪĂĂ ɍ ÛŏĺţĂǣ Ōɳ 50 ƃÛ ƵāĂĺş ÛFeTS (ȯ/ȟ 100~) ĺĔǫζɳɟā ȯζŸĦŧȇ ĦĂζŸę ŎĤǱł ÛǯÂŧł

:ƃĺǪōā øĺĢǪǹɍā ɄøǦŸł ɃǾōā TS (ȯ/ȟ 100~) ĺĔǫζɳÛ ȯζŸƮ **.PbTS ȯ ȟ 100~ Ammonia** ĺĔǫζɳɟā ȯζŸƮ

ȯζŸƮ ȸɳ Ōɳ 1 ǦōĺŧǰōāƃÛ ȣĺȒł ÛɄǝĺɳ ÿĺþ ʔŸʒ ȣĺĂƨā ƃÛ TS (ȯ/ȟ 100~) ĺĔǫζɳɟā ȯζŸƮ ȸɳ Ōɳ 5 ĂĺÁĢł

60~) ŌĔǪĔèɟā Ȓþ ȸɳ Ōɳ 2 Ž ǦōĺŧǰōāǡāǾł .ȣĺĂƨā ƃÛ ĂĺÁĺş ÛTS (ȯ/ȟ 70~) ŌĂøζŸõşøÆĔŢā Ȓþ

ǦŌĂĂÛǣ ÆŁĺÎōā ĂĺȒĦł .ǦŸĔŎǯōā (ǧāĂŸĂōā) ɉǻĺĦţā ŎǱɟ øĺĢǪǹɍā ĘĢÛłş Ōɳ 25 ƃÛ ŏĺţĂǣ ƵāĂĺł ÛPbTS (ȯ/ȟ

.Ōɳ/ÿāĂȡşĂŌɳ 2 ɄŁ ǦŸĔŎǯōā (ǧāĂŸĂōā) ɉǻĺĦţā ǻşÆǵ .ǦōĺÎɧ

، Ammonia buffer TS ĺĔǫζɳɟā Ǧǝøāǻ ȯζŸƮ

ŏĺţĂǣ ƵāĂĺş TS (ȯ/ȟ 260~) ĺĔǫζɳɟā ȯζŸƮ ȸɳ Ōɳ 570 Ž R ĺĔǫζɳɟā ÆĂøζŸõ ȸɳ ȟ 67.5 ǡāǾł .*ŏăĂĎƵqā*

.Ōɳ 1000 ƃÛ

.(32 ǦĦĂÔōā Û1963 ÛSRIP) $C_2H_7NO_2$ **، Ammonium acetate R** ÿζĔǫζɳɟā ǧĺǪĔèÛ

ǦăāĂɐ ɃşĺΣā R ĺĔǫζɳɟā ǧĺǪĔèÛ ȸɳ ȯζŸƮ ζŁ **، TS ȯ ȟ 80 Ammonium acetate** ÿζĔǫζɳɟā ǧĺǪĔèÛ ȯζŸƮ

.(ĦĢĂĂŎǩ ȯ/ȯζɳ 1) $C_2H_7NO_2$ ȸɳ ȯ/ȟ 77

.(33 ǦĤĂÔöä Û1963 ÛSRIP) $(NH_4)_2CO_3$ ،**Ammonium carbonate R** ÿζĿφζηǰä ğĂφζæÀÕ

.(33 ǦĤĂÔöä Û1963 ÛSRIP) NH_4Cl ،**Ammonium chloride R** ÿζĿφζηǰä ÆÀόζŸÕ

.(NH_4 Ōη/ÿäÀȡşÀŎη 10) ،**Ammonium chloride TS** ÿζĿφζηǰä ÆÀόζŸÕ ȯζŸʅ

.Ōη 1000 ǯĂφq ŏĂʈä ȸη ȣĂÕ óäÆŌη Ž R ÿζĿφζηǰä ÆÀόζŸÕ ȸη ÛĞĿüζĜȒŧê Ğφşàζη Ûȟ0.296 ăäØƚ .*ŏäÄDZqä*

.Ōη 100 БĽ ȯζŸǂä äØŁ ȸη Ōη 10 ZäÄÁƚ

.ȻKȒƠ ȸη ʈζĜèĽ 2 ȯŸǹ ȯζŸǂä ŌŧȞÊƚ ،*Shelf - life ȸÀÂÁǬöä ÄŧƷ*

.10.0 ŏÀŁÀæ şæ Ğəóäắ ǰÀÂη Û**10.0** ŏÀŁÀæ Û**Ammonium chloride buffer TS** ÿζĿφζηǰä ÆÀόζŸÕ Ğəóäắ ȯζŸʅ

óäÆŌη ZäÄÁƚş TS (ȯ/ȟ260~) ÀĿφζηǰä ȯζŸʅ ȸη Ōη 57 Ž R ÿζĿφζηǰä ÆÀόζŸÕ ȸη ȟ 7.0 ăäØƚ .*ŏäÄDZqä*

.Ōη 100 ǯĂφq ŏĂʈä ȸη äȣĂÕ

.(34 ǦĤĂÔöä Û1963 ÛSRIP) $(NH_4)_6Mo_7O_{24},4H_2O$.**Ammonium molybdate R** ÿζĿφζηǰä ğäÆĜĿöζη

ɃşĂΣä R ÿζĿφζηǰä ğäÆĜĿöζη ȸη ȯζŸʅ .**TS** ȯ ȟ **95** **Ammonium molybdate** ÿζĿφζηǰä ğäÆĜĿöζη ȯζŸʅ

.$(NH_4)_6Mo_7O_{24}$ ȸη ȯ/ȟ 95

.(36 ǦĤĂÔöä Û1963 ÛSRIP) $C_2H_8N_2O_4$, H_2O ،**Ammonium oxalate R** ÿζĿφζηǰä ğɍĂÊÕĽ

ĞäÀȩ ɃşĂΣä R ÿζĿφζηǰä ğɍĂÊÕĽ ȸη ȯζŸʅ .**TS** ȯ ȟ **25** **Ammonium oxalate** ÿζĿφζηǰä ğɍĂÊÕĽ ȯζŸʅ

.$C_2H_8N_2O_4$ ȸη ȯ/ȟ 27

.(36 ǦĤĂÔöä Û1963 ÛSRIP) NH_4SCN ،**Ammonium thiocyanate R** ÿζĿφζηǰä ğĂφĂĿèζĿǫ

ɃşĂΣä ÿζĿφζηǰä ğĂφĂĿèζĿǫ ȸη ȯζŸʅ ،**TS** ȯ ȟ **75** **Ammonium thiocyanate** ÿζĿφζηǰä ğĂφĂĿèζĿǫ ȯζŸʅ

.(ȯ/ȯζη 1 ăóĂŌÀ Ăη) NH_4SCN ȸη ȯ/ȟ 75 ĞäÀȩ

ŏĂʈä Ž ĞäØȟ ÛR ÿζĿφζηǰä ğĂφĂĿèζĿǫ .**VS** ȯ ȯζη **0.1** **Ammonium thiocyanate** ÿζĿφζηǰä ğĂφĂĿèζĿǫ ȯζŸʅ

.Ōη1000 Ž NH_4SCN ȸη ȟ7.612 ƻŸƷ ɃζǬĤĿ

ƷȑζƗ :ĞĿöĂǬöä ĞŌÀÀÛöĂæ ȯ/ȯζη 0.1 ȯζŸĤŧŸö ĘĿęÆöä ÂĿÕÀǬöä ȸη ĘŌĤǬöä ǈǬÀ .*standardization* *ÈĿĿŌǬöä ĞŌÀÄü*

ȸη Ōη 50 óäÆŌη ZäÄÁƚ .ǥắäÆè ğäæ ĞĿDZĂDZà ĞŸDZζǵ Ž VS (ȯ/ȯζη 0.1) ĞȒĂöä ğäÀǬǭ ȯζŸʅ ȸη Ōη 30.0

БĽ ÿζĿφζηǰä ğĂφĂĿèζĿǫ ȯζŸĤŧê ÀÀĂȞƚ ĂŁÆÀƷş TS (ȯ/ȟ1000~) ŌÀÀǬêöä Ȓþ ȯζŸʅ ȸη Ōη 2 ȣĂȒƚ ÛöĂʈä

45) ŌÀÆÀÆΣäş ÿζĿφζηǰä ğĂÀŸè ȯζŸʅ ȸη Ōη 2 ȯĂŧȞǬèĂæ ÛǂĜöä БĽ ăóĂȒöä ǥĂŧΣä ɉζŸö óζƮş ȯşĽ ƙǥ

.ÀȞÎŧÕ TS (ȯ/ȟ

Ž ĞäØȟ ÛR ÿζĿφζηǰä ğĂφĂĿèζĿǫ .**VS** (ȯ ȯζη **0.01**) **Ammonium thiocyanate** ÿζĿφζηǰä ğĂφĂĿèζĿǫ ȯζŸʅ

.Ōŋ 1000 Ž NH_4SCN ȸŋ ȟ 0.7612 ɁǶ Ƀ ǭ ŏǾ ȶ

ȯ ǭ Ţ ȷ ǭ Ǩ Ơ ǭǭ ȍ ǭ ȶ ǦŌ ǚ ȯ ǭ Ƚ Ȉ Ę ę Ǽ Ȭ Ě Ō ȴ .*standardization* *Ȅ Ǧ Ō ü*

.VS (ȯ/ȯ ǭ ŋ 0.1) ȳ ǭ ȷ ǧ ȅ ǭ

،$C_4H_4NaO_7Sb$ ،**Antimony sodium tartarate R** ȷ ǭ ȶ ȷ ş ȳ ǭ Ǻ ǭ Ô ǧ ü ü

.Ȓ ȷ Б ā ø ȓ ş Ȣ ì Û hygroscopic Ǣ û Ê ȧ ǭ Ê ŋ ş scales Ȥ ì ǧ :*Ȥ ȍ ǭ*

.TS (ȯ/ȟ 710~) ȯ ǭ ǭ Ž ȶ ā ş Ƙ ȹ ȶ ȸ ŋ ǭ 1.5 Ž ā ş :*Ǧ ş Ǿ*

ȳ ǭ Ǻ ǭ Ô ǧ ü ü ȯ ǭ Ţ .**TS ȯ ȟ50 Antimony sodium tartarate** ȷ ǭ ȶ ȷ ş ȳ ǭ Ǻ ǭ Ô ǧ ü ü ȯ ǭ Ţ

.$C_4H_4NaO_7Sb$ ȸŋ ȯ/ȟ 50 Ǧ ɁǶ Ƀ ş Ʃ R ȳ ǭ ȷ ş

ȸŋ ȳ ȡ ş Ȯŋ 10 ɁǶ Ƀ ǭ Ʒ Ʉ ŋ ǧ ş Ȭ ،**AsTS** Û Ȥ ȶ Û**Arsenic** Ǹ ø Â Ȭ è ø ȷ ȯ ǭ Ţ

.Ȭ è ø ȷ

.Ōŋ 100 ȝ ǭ ŏ ȶ ȸŋ Ȣ Ȭ ø Ǣ Ōŋ AsTS Â Ȭ ȶ (Ǹ ø Â) Ȭ è ø ȷ ȯ ǭ Ţ ȸŋ Ōŋ 1 Ȥ Ǻ Ƚ :*ǿ ǭ q*

.ƘȒ ȝ ü AsTS Ȭ è ø ȷ ȯ ǭ Ţ ȷ ǭ Ȯ ȷ Ǣ ƶ :*Ƭ ǧ Ɏ ŋ*

،**AsTS** Û Ȭ ȶ Û**Arsenic** Ǹ ø Â Ȭ è ø ȷ ȯ ǭ Ţ

ȳ ǭ Ǻ ǭ Ô Ǣ Ê Ȭ ş ø Ǣ ȯ ǭ Ţ ȸŋ Ōŋ 6 Ž R (Ǹ ø Â) Ȭ è ø ȷ Ǣ Ê Ȭ Ʉ Ɏ ȸŋ ȟ 0.132 ā Ø Ƚ :*ǿ ǭ q*

Ȣ Ȓ ş Û ŏ ȶ ȸŋ Ōŋ 20 ø Ǣ Ōŋ Ǻ ȶ ȯ ǭ ǂ Ȥ Ǻ Ƚ .Ȥ Ȝ Ƙ Ê Û TS (ȯ/ȟ 80~) sodium hydroxide

.Ōŋ 100 ȝ ǭ ŏ ȶ ȸŋ Ȣ Ȭ ø Ǣ Ōŋ ş TS (ȯ/ȟ 250~) Ȭ ø ǭ Ȭ ş ø Ǣ Ȓ þ ȯ ǭ Ţ ȸŋ Ōŋ 50

.(44 Ǧ Ô Û1963 ÛSRIP) As_2O_3 ،**Arsenic trioxide R** Ȭ è ø ȷ Ǣ Ê Ȭ Ʉ Ɏ

.(45 Ǧ Ô Û1963 ÛSRIP) $BaCl_2, 2H_2O$ ،**Barium chloride R** ȳ ǭ ø Ǣ ø ǭ Ȭ

ȸŋ ȯ/ȟ 52 Ǧ Ƀ ş Ʃ R ȳ ǭ ø Ǣ ø ǭ Ȭ ȸŋ ȯ ǭ Ţ ،**TS ȯ ȟ50 Barium chloride** ȳ ǭ ø Ǣ ø ǭ Ȭ ȯ ǭ Ţ

.(ȯ/ȯ ǭ ŋ 0.25 ā ø Ȭ Ƚ ŋ) $BaCl_2$

ɁǶ Ƀ ǭ ŏ ȶ Ž ā Ø Û R ȳ ǭ ø Ǣ ø ǭ Ȭ ،**VS ȯ ȯ ǭ ŋ 0.5 Barium chloride** ȳ ǭ ø Ǣ ø ǭ Ȭ ȯ ǭ Ţ

.Ōŋ 1000 Ž $BaCl_2$ ȸŋ ȟ 104.2

Ʒ ȓ ǭ Ƚ :Ǧ ǦŌ ǚ ȯ/ȯ ǭ ŋ 0.5 ȯ ǭ Ƚ Ȉ Ę ę Ǽ Ȭ Ě Ō ȴ .*standardization* *Ȅ Ǧ Ō ü*

Ȣ Ȓ Ƚ Û ŏ ȶ ȸŋ Ōŋ 40 ø Ǣ Ōŋ Ȥ Ǻ Ƚ Û Ǭ ǭ ǧ Ž VS (ȯ/ȯ ǭ ŋ 0.5) Ȭ ø ǭ Ê Ȓ þ ȯ ǭ Ţ ȸŋ Ōŋ 10.0

ā ø Ȓ ȷ ǭ Ɂ ø ǧ ȳ ǭ ø Ǣ ø ǭ Ȭ ȯ ǭ Ƚ ŏ Ȕ Ǩ ş Û TS (ȯ/ȟ 2) thorin ȸ ø ǭ ȯ ǭ Ţ ȸŋ ȷ Ǩ Û ę

.þ ȷ Б

.(47 1963 SRIP) $Ba(NO_3)_2$ **.Barium nitrate R**

2.614 R .VS 0.01 **Barium nitrate**

.1000 $Ba(NO_3)_2$

.standardization 0.01

40 VS (0.01) 10.0

methylthioninium TS thorin

TS chloride (0.2)

،BaO ،Barium oxide R

،Barium sulfate suspension TS

20 55 VS (0.5) 15

TS (174) TS (~750) 5

.100

TS

،Beef extract R

%96.0 $C_{16}H_{17}N_2NaO_4S$ **،Benzylpenicillin sodium R**

$C_{16}H_{17}NaO_4S$ %102.0

R 0.5

Benzylpenicillin sodium TS

R 0.03

R 3 10 TS 7.0

H_3BO_3 %99.0 H_3BO_3 **،Boric acid R**

[illegible]

[illegible] 20 [illegible] 3 [illegible] 16 [illegible] 750~) [illegible]
.TS [illegible]

[illegible] 1.0 [illegible] 30 [illegible]

[illegible] 1.0 [illegible] 10 [illegible] 750~) [illegible] TS [illegible]

[illegible]

[illegible] *assay* [illegible] 1 [illegible] 30 [illegible] 50 [illegible]

[illegible] TS [illegible]

[illegible] 1) [illegible] VS [illegible] TS [illegible] 1 [illegible]

[illegible] 1) VS [illegible] 61.83 [illegible] H_3BO_3.

[illegible] **Boric acid** **50** [illegible] **TS** [illegible] R [illegible] 50 [illegible] H_3BO_3.

[illegible] **Bromine R** Br_2 (SRIP [illegible] 1963 [illegible] 51).

[illegible] **Bromine TS1** [illegible] R.

[illegible] **Bromine AsTS**

[illegible] 30 [illegible] R [illegible] 40 [illegible] 30 [illegible] R [illegible]

[illegible] 100 [illegible] 10 [illegible]

[illegible] 50 [illegible] 10 [illegible] 250~) AsTS [illegible]

[illegible] stannous chloride AsTS [illegible]

[illegible] –1 [illegible]

[illegible] 1 [illegible]

[illegible] **Bromophenol blue R** $C_{19}H_{10}Br_4O_5S$ (SRIP [illegible] 1963 [illegible] 52).

[illegible] **Bromophenol blue/ethanol TS**

[illegible] 0.1 [illegible] R [illegible] 3.2 [illegible] 0.05) [illegible]

[illegible] VS [illegible] 5 [illegible] 710~) TS [illegible]

[illegible] 150~) [illegible] 250 [illegible]

[illegible] **Brown stock standard TS**

[illegible] 35.0 [illegible] TS [illegible] 17.0 [illegible] TS [illegible] 0.8 [illegible]

.ǯÂǫş ÛTS ÆÅÆΣã ɉǫö ȯǫŸĦȶê Ǒɳ 100.0 БÜ ȤǟÅƚ ÛTS ğÅɳşÀȮöä ƟəÅǂ ɉǫö ȯǫŸȚ ȡɳ

.(56 ǦĦȦÔöä Û1963 ÛSRIP) $CaCO_3$ **.Calcium carbonate R1** ÿǫÊöÅȮöä ğÅɸǫǟÀõ

Ƀ øÅĦĤȶõ ÿÆÅɸö ǦǤèÅɳ ǥǻǫƛ R1 ÿǫÊöÅõ ğÅɸǫǟÀõ .$CaCO_3$ **.Calcium carbonate R**2 ÿǫÊöÅȮöä ğÅɸǫǟÀõ

.disodium edetate ÿǫÅǻǫÔöä ǦƏÅǂ ğÅǬÅÆɋã ÈÆÕǩ ǑǱɉ ƃşÜ

Û1963ÛSRIP) $CaCl_2$. R ÿǫÊöÅȮöä ÆÅøǫŸõ **Calcium chloride, anhydrous,R** ƟəÅɳŸöä Ûÿǫ ÊöÅȮöä ÆÅøǫŸõ

.(58 ǦĦȦÔöä

Û1963 ÛSRIP) $CaCl_2$, $6H_2O$ **،Calcium chloride, hydrated, R** Û ƟøǩäøÆȚã ȼȶȶã Ûÿǫ ÊöÅȮöä ÆÅøǫŸõ

(58 ǦĦȦÔöä

ɁŸȝ ɃşÅΣã R ȼȶȶã ÿǫÊöÅȮöä ÆÅøǫŸõ ȡɳ ȯǫŸȚ .**TS** ȯ ȟ **55** **Calcium chloride** ÿǫÊöÅȮöä ÆÅøǫŸõ ȯǫŸȚ

.(ȯ/ȯǫɳ 0.5 ãøÅÕƚ Åɳ) $CaCl_2$ ȡɳ ȯ/ȟ 55 ǦäÅǯ

2-hydroxy-1-[(2-hydroxy-1-naphthyl)-azo] ȐȶΣ ÿǫÅǻǫÔöä ɃǻÅǥ ǴŸɳ **.Calcon R** ɉǫȮöÅȮöä

Ǧęøã ǻǫèÜ Û15705 ȴęø C.I. ÛMordant Black 17 Ƙɸǻøǫɳ ǻǫèÜ C.I Ünaphthalene-4-sulfonic acid

ÜSolochrom Dark Blue ÿşÀõǫöǫÊöä ǦÅõäÆöä ǦęøÂöä ÛEriochrome Blue Black R ÿşÀõǫÅÅɼã

.$C_{20}H_{13}N_2NaO_5S$

2-Hydroxyl-1- (2-hydroxy-4-sulfo-1- **،Calcon carboxylic acid R** ƟŸÊõǫǟÀȮöä ɉǫȮöÅȮöä Ȑ ƥ

.$C_{21}H_{14}N_2O_7S$, $3H_2O$ Ünaphthyl-azo) -3-naphtoic acid

.ǦǱÊÅǟ ǦĦÊɳ ǴÅȝ Ɵøǟ ɉǫŸǟ ȧǫĦÊɳ *.Ȥöǫöä*

ɉǟşǾöä Àǵ ÜTS (ȯ/ȟ 750~) ȯǫɸÅǯɋã Žş R ȯǫɸÅǯȶȶã Ž ɉǟşǾöä ǴĦȉ ÜöȶȶãŽ ÆŸȶȝ ãǟşǿ Ƙɖ *.ǦɸÅǟşǾöä*

.alkali hydroxides ğÅǫŸöä ğäÆÊõşøÆȽ ǑƏÅȚ Ž

Calcon carboxylic acid indicator mixture R ƟŸÊõǫǟÀȮöä ɉǫȮöÅȮöä Ȑ ƥ ÀȞÎɳ ǰÅɳ

.R ǦƏÅɳŸöä ÿǫÅǻǫÔöä ğÅŸè ȡɳ ȟ 10 ȝɳ R ƟŸÊõǫǟÀȮöä ɉǫȮöÅȮöä Ȑ ƥ ȡɳ ȟ 0.1 ǯÂȶƚ *.ǒäǱɋã*

.**R** ɉǫȮöÅȮöä ÀȞÎɳ ǰÅɳ

.R ǦƏÅɳŸöä ÿǫÅǻǫÔöä ğÅŸè ȡɳ ȟ 10 ȝɳ R ɉǫȮöÅȮöä ȡɳ ȟ 0.1 ǯÂȶƚ *.ǒäǱɋã*

،CO_2 ،Carbon dioxide R ɉǫǟÀȮöä ÆÊõÜ ƟəÅǂ

.ǦĦǟÀöä ȻÆȝ Üɉǫö Ÿǟ ǟÀɖ *.Ȥöǫöä*

.ǒÅȶã ȡɳ ÆȶǱǥ ǒÂǱ 1.3 ǦäÅǯ Ž ãǟşǿ *.ǦɸÅǟşǾöä*

.(62 [illegible] 1963 SRIP) CS_2 ، **Carbon disulfide R** [illegible]

[illegible] **Carbon disulfide IR** [illegible] R [illegible]

[illegible] 4 [illegible] 1.0 [illegible]

cm^{-1} 670- 4000 [illegible] (45 [illegible]) "[illegible]"

cm^{-1} 935-1265 cm^{-1} 1755-2000 cm^{-1} 2440 - 2635 cm^{-1} 3030- 4000 [illegible] 0.1 [illegible]

.cm^{-1} 715 - 800 [illegible] 0.17 [illegible]

.(63 [illegible] 1963 SRIP) CCl_4 ، **Carbon tetrachloride R** [illegible]

، $Ce(NO_3)_4$, $2NH_4NO_3$ ، **Ceric ammonium nitrate R** [illegible]

[illegible]

[illegible]

TS ([illegible] 1760~) [illegible] 10 [illegible] 5 [illegible]

[illegible] 90 [illegible]

[illegible] 105 [illegible] 1 [illegible]

.[illegible] 2.5 [illegible]

[illegible] 10 [illegible] 24 [illegible] 85 [illegible] 2.5 [illegible]

[illegible] 40 [illegible] TS ([illegible] 190~) [illegible]

[illegible] 1 [illegible] .VS ([illegible] 0.1) ferrous sulfate [illegible] *o*-phananthroline TS

.$Ce(NO_3)_4$, $2NH_4NO_3$ [illegible] 54.8 [illegible] VS ([illegible] 0.1) [illegible]

، **Ceric ammonium nitrate TS** [illegible]

.TS ([illegible] 15) [illegible] 10 [illegible] R [illegible] 6.25 [illegible]

[illegible] 3 [illegible]

.(63 [illegible] 1963 SRIP) $Ce(SO_4)_2$, $4H_2O$ [illegible] **Ceric sulfate R** [illegible]

[illegible] 33 [illegible] R [illegible] **.TS** [illegible] **35 Ceric sulfate** [illegible]

.$Ce(SO_4)_2$ [illegible]

.(64 [illegible] 1963 SRIP) **.Charcoal R** [illegible]

.$C_8H_{11}C_3O_6$ ، **Chloralose R** [illegible]

.ןζŸöä ĆǼȝ Ƀǿζǔ ȧζĦÊƞ .Ȥ ὄζöä

.°ÿ 187 ǦäÀ ǿȦȚÔφɍ ǵǿÄǵ ǦDZǿå

ÜTS (ȯ/ȟ 750~) ȯζφÅɋ Ž Ǒƞ/ƞ 50 ȯζŸȚ ǑȶĦÊł *.specific optical rotation* Ʉȝζ ɃÄÔǦ ÄȿÆ

. $[\alpha]_D^{20^\circ C} = +19^\circ$

.(65 ǦĦÀÔöä Û1963 ÛSRIP) Cl_2 ،**Chlorine R** ǿζŸÒöä

ǒÅţä Ž R ǿζŸÒöä ȡƞ ȝĜÎɦ ȯζŸȚ ،**Chlorine TS** ǿζŸÒöä ȯζŸȚ

.ƘȒĦöä ȝäÅü TS ǿζŸÒöä ȯζŸȚ ןζÒ ן Ǣƶ :ǦȚǵŶƞ

.(66 ǦĦÀÔöä Û1963 ÛSRIP) $CHCl_3$ ،**Chloroform R** ÿǿζζȿǿζŸÒöä

.(69 ǦĦÀÔöä Û1963 ÛSRIP) $C_6H_8O_7, H_2O$.**Citric acid R** ȪÄƘÊöä Ȑƥ

R ȪÄƘÊöä Ȑƥ ȡƞ ȟ 0.5 ǡäǾł :ƃÅöä ǿÅǦȵɍä Ʉǿǥł R ȪÄƘȅ Ȑƥ ،**Citric acid FeR** ȪÄƘÊöä Ȑƥ

ÅζŸę ǑȞǅł ÛȝÂȶł Ûmercaptoacetic acid R ȪȅÜζȪȭÀţä Ȑƥ ȡƞ ǵÀÛę 2 ȣÅȒł ÛǒÅţä ȡƞ Ǒƞ 40 Ž

.ǼŸÀφÀę Åζ ǰ ɍ ÜǒÅţ Ǒƞ 50 ƃÜ ȤÀÁɕ FeTS (ȯ/ȟ 100~) Åζƞɉ ȯζŸĦƞ

ȡƞ ȯ/ȟ 183 ǦäÀ ɁŸȝ ɃȿÅΣä FeR ȪÄƘÊöä Ȑȶ Σ ȯζŸȚ ،**Citric acid FeTS** ȪÄƘÊöä Ȑƥ ȯζŸȚ

.$C_6H_8O_7$

.**Cobalt colour, strong, TS** ÛÂȭÀţä ÛǨöÅζÒöä ןζ ȯζŸȚ

10~) ȪÄǿζÅŸÊöä Ȑƥ ȡƞ Ǒƞ 120 Ž cobaltous chloride R ȁζÅζÒöä ǼÄǿζŸȭ ȡƞ ȟ 8.0 ǡäǾł .ǒäǅDZɋ

.$CoCl_2,6H_2O$ ȡƞ ÂǼȭÀöä ȡĦÄȿ ÛÄǿȿÀ ȑ Ȫǿ ןÅȭ äǿÜ Ûȯζǂ ǴÀł ÛTS (ȯ/ȟ

ǦŸDZζǵ ƃÜ ȯζǂ äǾŁ ȡƞ Ǒƞ 10 ȬÅł .Ǒƞ 100 ȝÅφɋ ǒÅţä ȡƞ ȣÅȭ ǿäǼǑƞ Ǒƞ 5.0 ȤÀÁł .*assay* ǦÊÄǑţ

60~) hydrogen peroxide ƙDZȿǿÆȚä ǼÊȭȿƘ ȯζŸȚ ȡƞ Ǒƞ 0.5 ÛǒÅţä ȡƞ Ǒƞ 10 ȣÅȒł ÛǵåȿǼÊƞ ǦǼDZÅDZä

boiling chips ןÅŸȡ ǴäÀ ȝȒ ȣÅȒł .TS (ȯ/ȟ 80) ÿζÅåζÔöä ǼÊȭȿǿǼŁ ȯζŸȚ ȡƞ Ǒƞ 10ȿ TS (ȯ/ȟ

hydrogen peroxide ƙDZȿǿÆȚä ǼÊȭȿƘ ȡƞ ǵåÀÂöä ȪÒÀǨ ɁøǵǦŸDZζΣä ɁζȚ ɁŸȣȿ ÛǦŸDZζΣä ƃÜ

25ȿ ÛR ÿζȅÅζǦöä ǼÄåζÄ ȡƞ ȟ 1 ÛǒÅţä ȡƞ Ǒƞ 20 ȣÅȒł ÛǦŸDZζΣä åȜł .(ȨÅȩå 10 ǡǿÅǑł Åƞ) ǑƞÅȭ ǑÒÎ

ǡȿǾ Ɂøǵ ǼȭÀ ȭÀȿ ǵåÊ ǦŸDZζΣä ȨŸȣł .VS (ȯ/ȯζƞ 2) ȪÄǿζŸȭȿǿÆȚä Ȑƥ ȯζŸȚ ȡƞ Ǒƞ

TS ÅÎÀöä ȯζŸȚ ȯÅȶĦȅÅ VS (ȯ/ȯζƞ 0.01) ÿζÅåζÔöä ǧÅÀŸȅζ ȯζŸĦȶȇ ǿȁĦţä åζöä ÀÅĦł .ǦäȅÅöä

.$CoCl_2, 6H_2O$ ȡƞ ƞŸƞ 2.380 ȕζÅÖł VS (ȯ/ȯζƞ 0.01) ÿζÅåζÔöä ǧÅÀŸȅζ ȯζŸȚ ȡƞ Ǒƞ 1 Ȫȭ .ÀĦÎȶȭ

.$CoCl_2, 6H_2O$ ȡƞ ȯ/ȟ 60.0 ɁŸȝ ɃζȜ ȯζŸȚ .**Cobalt colour TS** ǨöÅζÒöä ןζ ȯζŸȚ

ÂõÀţă ĶöÂæζÒöä ȷζö òζŸƮ ƵÆÂǺ Ōƞ 100 Ž $CoCl_2, 6H_2O$ ǆƞ ȟ 6.000 ȝŸȝ ɃζƷ òζŸƮ ÂȒĦŀ .*ŏäÄDZqǟ*
.ģǿşÀȒöä ǼȝÛTS (ò/ȟ 10~) ȬǾζÀŸÊöä ȐŧШ TS

.(70 ǦĦÂÔöä Û1963 ÛSRIP) $CoCl_2, 6H_2O$ ،**Cobaltous chloride R** àζǬöÂæζÒöä ǼǾζŸõ

.(72 ǦĦÂÔöä Û1963 ÛSRIP) **Congo red paper R** ζȣζÒöä ģÀŧğ ȧǿş

،**Copper colour, strong, TS** ÛÂȭÀţă Û ȃÀĦÂöä ȷζö òζŸƮ

ÛTS (ò/ȟ 10~) ȬǾζÀŸÊöä Ȑƥ òζŸƮ ǆƞ Ōƞ 120 Ž R (II) ȃÀĦÂöä ğÀŸè ǆƞ ȟ 8.0 ȃØŀ .*ŏäÄDZqǟ*
.$CuSO_4, 5H_2O$ ÂȭÀǩ ǆĦŀş ÛǾşÀȓ Ȭöæ ȷÂõ äæǗ ÛòζŸǂă ǴȉÀŀ

ǦDZÂDZà ǦŸDZζǵ БǗ òζŸǂă äØȽ ǆƞ Ōƞ 10 ȬÖŀ .Ōƞ 100 ǯÂǬq ŏÂţă ǆƞ ąȣÂõ ǿäǼŌƞ Ōƞ 5.0 ƵÂǺŀ .*ǦÊÀÕţă*
.R ɄDZŸǯöä ȬǬÊèɉă Ȑƥ ǆƞ Ōƞ 5ş ÛR ÿζÊèÂζǦöä ǼÂǻζÀ ǆƞ ȟ 1ş ÛŏÂţă ǆƞ Ōƞ 20 ȣÂȒŀ ÛģǻäǼè ğäæ
TS ÂȊÂöä òζŸƮ òÂŧǶèÂæ ÛVS (ò/òζƞ 0.01) ÿζǻζÔöä ğÀŸèζǬ òζŸĦŧȇ ǿÀĦţă ǻζÆöä ÀÀȞŀ ÛĘəÂęǻ 10 ǼȞæş
.$CuSO_4, 5H_2O$ ǆƞ ŊŸƞ 2.497 ȕζÒŀ VS (ò/òζƞ 0.01) ÿζǻζÔöä ğÀŸèζǬ òζŸƮ ǆƞ Ōƞ 1 Ōõ .ÀȞȊŧõ

.$CuSO_4, 5H_2O$ ǆƞ ò/ȟ 60.0 ȝŸȝ ɃζƷ òζŸƮ ،**Copper colour, TS** ȃÀĦÂöä ȷζö òζŸƮ
TS ÂõÀţă ȃÀĦÂöä òζŸƮ ƵÆÂǺ Ōƞ 100 Ž $CuSO_4,5H_2O$ ǆƞ ȟ 6.000 ȝŸȝ ɃζƷ òζŸƮ ÂȒĦŀ .*ŏäÄDZqǟ*
.ǼǾşÀȓ Ȭöæ ȷÂõ äæǗ ÛTS (ò/ȟ 10~) ȬǾζÀŸÊöä Ȑƥ òζŸĦŧȇ

.(73 ǦĦÂÔöä Û1963 ÛSRIP) .$CuSO_4, 5H_2O$ ،**Copper (II) sulfate R** ȃÀĦÂöä ğÀŸè

160 ǦäÀę ɃşÂΣă R (II) ȃÀĦÂöä ğÀŸè òζŸƮ .**TS ò ȟ 160 Copper (II) sulfate** ȃÀĦÂöä ğÀŸè òζŸƮ
.$CuSO_4$ ǆƞ ò/ȟ

.(73 ǦĦÂÔöä Û1963 ÛSRIP) .$C_{25}H_{30}ClN_3$.**Crystal violet R** ģǿζŸǦţă ǦDZÊÀǦöä

Ž ȃØȟ R ģǿζŸǦƞ ǦDZÊÀæ òζŸƮ .**Crystal violet/acetic acid TS** ȬǬÊèɉă Ȑƥ ģǿζŸǦţă ǦDZÊÀǦöä òζŸƮ
.ò/ȟ 5 ǦäÀę ȝŸȝ ÀζƮ R1 ɄDZŸǯöä ȬǬèɉă Ȑƥ

،**Culture medium Cm1** ĶǾǬÊţă

pancreatic digest of ǆÀàÂÒŸö ǦÊèÀÀÒǦöä ǦƞÂȒƮă ǆƞ ȟ 4.0ş ÛR ƵÂDZţă ȷζǦöä ǆƞ ȟ 6.0 ȃØŀ .*ŏäÄDZqǟ*
ǆƞ ȟ 1.0ş ÛR ÀÕöä ȴΣ ǦòŸǹ ǆƞ ȟ 1.5ş ÛR ŏÂţă Ž ǦäşØöä yeast ģĶŧȴă ǦòŸǹ ǆƞ ȟ 3.0ş Ûcasein R
.Ōƞ 1000 ǯÂǬq ŏÂţă ǆƞ ȣÂõ ǿäǼŌƞ Ž agar R ǿÂȡǿă ŏÀȡ ǆƞ ȟ 20-10ş ÛR àζõζŸȣöä ğäǿǼȽ
şǗ ğÂǬζÛèɍă ȴȝǼö ǦƵÂõ ǦæŸÔæ ȷζÒÀ ȷüæ ĶǦǬÊŧŸö ŌŧȞÊţă R ǿÂȡǿă ŏÀȡ ǿäǼŌƞ ǴŧÊÀ ȷǗ Ǽƶ :*ǦƮǵŸƞ*
.ÿŸƮă ǦÕǦÛö tearing ţÂƞǻ ǫşǼǵ ȷşǻ ȃζŌǫ ȝÛÕæ ǴŧÊǼö

Culture medium Cm2

3.0 pancreatic digest of casein R 17.0

2.5 0.5 soybean meal papaic digest

2.5 dipotassium hydrogen phosphate R

10.0 500 agar R 20 - 10

1000 polysorbate 80 R

tearing

Culture medium Cm3

2.4 yeast 4.7 9.4

25-15 10.0 10.0

1000 agar R

Culture medium Cm4 mercaptoacetate (thioglycolate)

0.5 L-cystine R mortar 2.5

5.0 0.75 5.5

pancreatic digest of casein R 15.0 R yeast.

1000

R

0.5 R 0.3

VS (1) 7.2 - 7.0

1.0 resazurin sodium TS (1)

20-18 autoclaving 121 °C 25

30-20 °C

[illegible]

[illegible] **Culture medium Cm5** [illegible] Soybean-casein digest medium.

[illegible] 17.0 [illegible] pancreatic digest of casein R [illegible] 3.0 [illegible] papaic digest [illegible] soyabean meal R [illegible] 0.5 [illegible] 2.5 [illegible] R [illegible] 2.5 [illegible] R. [illegible] 1000 [illegible] VS (1 [illegible]) [illegible] 7.1 - 7.5 [illegible] 18- 20 [illegible] 121 °[illegible].

[illegible] **Culture medium Cm6** [illegible] mercaptoacetate [illegible] (thioglycolate [illegible]) [illegible] penicillinase.

[illegible] Cm4 [illegible] TS [illegible] Cm4 [illegible] TS [illegible] penicillin [illegible] cm6 [illegible] 30-32 °[illegible] 24 - 48 [illegible].

[illegible] **Culture medium Cm7** [illegible] soybean-casein digest [illegible] penicillinase.

[illegible] Cm5 [illegible] 5.0 [illegible] polysorbate R 80 [illegible] TS [illegible] TS [illegible] Cm5 [illegible].

[illegible] **Cyclohexane R** [illegible] C_6H_{12} (SRIP [illegible] 1963 [illegible] 74).

[illegible] **L-Cystine R** [illegible] $C_6H_{12}N_2O_4S_2$ (SRIP [illegible] 1963 [illegible] 75).

[illegible] **Dibromomethane R** [illegible] Methylene bromide [illegible] CH_2Br_2،

[illegible]

miscibility [illegible] (~750 [illegible]) TS [illegible] R [illegible] R.

.CH_2Cl_2 [illegible] Methylene chloride [illegible] **Dichloromethane R** [illegible]

. [illegible]

.R [illegible] TS [illegible] 750~) [illegible] *miscibility* [illegible]

.°[illegible] 41[illegible] 39 [illegible] %95 [illegible]

[illegible] 105 [illegible] *residue on evaporation* [illegible]

.[illegible] 0.5 [illegible]

Dichromate colour, strong, TS [illegible]

([illegible] 10~) [illegible] 120 [illegible] R [illegible] 6.0 [illegible]

.$K_2Cr_2O_7$ [illegible] TS

[illegible] 10 [illegible] 50 [illegible] 5.0 [illegible] *assay* [illegible]

[illegible] 20[illegible] R [illegible] 2[illegible] 10 [illegible]

[illegible] 1 [illegible] .TS ([illegible] 100~) [illegible]

[illegible] 5 [illegible] R [illegible]

[illegible] 1 [illegible] TS [illegible] VS ([illegible] 0.1) [illegible]

.$K_2Cr_2O_7$ [illegible] 4.904 [illegible] VS ([illegible] 0.1)

.$K_2Cr_2O_7$ [illegible] 4.904 [illegible] **Dichromate colour TS** [illegible]

[illegible] 100 [illegible] $K_2Cr_2O_7$ [illegible] 490.35 [illegible]

[illegible] TS ([illegible] 10~) [illegible] TS [illegible]

.$C_4H_{10}O_3$ **Diethylene glycol R** [illegible]

[illegible]

.R [illegible] R [illegible] TS ([illegible] 750~) [illegible] *miscibility* [illegible]

.°[illegible] 250[illegible] 240 [illegible]

.[illegible] 1.120-1.117 .(Q_{20}) *Mass density* [illegible]

[illegible] TS [illegible] 250 [illegible] 60 [illegible]

15 [illegible] VS ([illegible] 0.02) [illegible]

.[illegible] 2.5 [illegible]

،C_3H_7NO ،**Dimethylformamide R** ÆĿƞÅƞǿzz ŌĿǯĿƞ ɄəÅÅþ

.ģÂĿŧƕ ǦĦɄəäÅæ Û¢ō ɉzō ғ ȣÅò ŌəÅè *.Ȥòzäi*

.TS (ȯ/ȟ 750~) ȯzφÅǯɅɋä ȝƞş ŏÅţä ȝƞ ǯşÂƕ *.miscibility* *ǦĿDZşÂţä*

.°ÿ 156ş 152 ƙæ %25 ȡȝ ŌŌɅ ғ Åƞ ÀÛŌɅ *.ɉÆĿŸȣäi ȯÅƒ*

.ȯ/ƞŸõ 0.947-0.945 .(Q_{20}) *Mass density* *ǦĿŸǪȮäi ǦzÅǯȮäi*

ғ ÜTS ȯzφÅǯɅɋä/ƙÅöÅǯz ȯzÆÅöä ȯzŸƮ ȡƞ ģÀÛę 2 ȣÅȒŀ ÛŏÅţä ȡƞ Ōƞ 10 Ž ȟ 1 āäǾŀ *.ǦɅzŸŌäş Ǧȑzŧ Σä*

ɉzŸöä ǯÅǪφɋ VS (ȯ/ȯzƞ 0.01) ğÅφzæÀȮöä ȡƞ ƃÅƪä ÿzɅáz Ôöä ÆĿÊõşǿÆĿŁ ȯzŸƮ ȡƞ Ōƞ 0.2 ȡƞ ÀǯõÜ ÆĿÛǪɅ

ģÂŧğ ȯzŸƮ ȡƞ ğäÀÛę 5ş VS (ȯ/ȯzƞ 0.01) ŌɅǿzŸõşǿÆĿTä Ȓþ ȯzŸƮ ȡƞ Ōƞ 0.3 ȣÅȒŀ .Àþɉä

.ƃÅŌƙÅæ ɉzō ǰǪɅ ÜTS ȯzφÅǯɅɋä/ŌĿǯĿţä

áäÆĦǪŸō ÆèÅƞ .$C_{26}H_{20}N_2O_2$ Dimethyl-POPOP ،**1,4-Di[2-(methyl-5-phenyloxazole)]benzene R**

.scintillation counting ɄøφÅȒƕzöä

،$C_4H_8O_2$ Û**1,4-Dioxane** ،**Dioxan R** ɉÅÊõzɅÆöä

.ğäÆĿÊõşƘǦöä ŌDZɉ ǿÅǪǹғä ɄøǦŸŀ ɉÜ Ōǲę ƘǺǪöÅæ ǦöÅŧǯöä şÜ ɉÆĿŸȣöä ȯÅƒ ȡĦĦŀ ɉÜ ƘÛǹ Àƞɉ ¢φÜ *.ÀɅǾƠ*

.ɉzŸöä ǤÆȝ ÜȣÅò ŌəÅè *.Ȥòzäi*

.R Ƙǭɉäş TS (ȯ/ȟ 750~) ȯzφÅǯɅɋäş ŏÅţä ȝƞ ǯşÂƕ *.miscibility* *ǦĿDZşÂţä*

.°ÿ 105ş 101 ƙæ %95 ȡȝ ŌŌɅ ғ Åƞ ÀÛŌɅ *.ɉÆĿŸȣäi ȯÅƒ*

.°ÿ 10 ȡƞ ʔøφáÜ ģǿäÀǵ ǦDZǿá Ž ÅƞÅǪ ǿÅƬÔφŸō ázĦŀ ғş ǰŸǯöä Ž áÅÅŀ ÅƞÆȝ ÆĿÛÔǪ *.ǿÅƬÔφғä ǦDZǿá*

ģǿäÀǵ ǦDZǿá Ž ǨæÅǯöä ɉàzöä ƃÜ ȤÅDzŀş ɄəÅƞ ÿÅþ ʔŸȝ ÀǺǤøŀ *.residue on evaporation* *ƘǺǪöÅæ ǦöÅŧǯöä*

.Ōƞ/ƞŸƞ 0.1 ȡƞ ÀǯõÜ ǦöÅŧǷ õÀǪɅ ғ Ü°ÿ105

.ȯ/ƞŸõ 1.031 ǦæäÀĕ .(Q_{20}) *mass density* *ǦĿŸǪȮäi ǦzÅǯȮäi*

Ōƞ/ƞŸƞ 5.0 ȡȝ ÆɅÂɅ ғ ÜÀÎĿz ȯǿÅõ ǦŌɅÀÛæ ȡĦĦŀ .*water* *ŏÅţä*

ȡƞ Ōƞ 5 ÛŏÅţä ȡƞ Ōƞ 10 Ž āäǾţä ÿzĿèÅƙzǦöä ÆɅázɅ ȡƞ ȟ 1 ǰɅÂƞ ƃÜ Ōƞ 5 ȣÅȒŀ *.peroxide* *ÆĿÊõşƘǦöä*

ȧǿäÜ ɉzō ȡƞ ÀǯõÜ ǰǪɅ ғ ÜǯÂŧƙş ÛTS ÅÎÅöä ȯzŸƮ ȡƞ Ōƞ 2ş ÛTS (ȯ/ȟ 70~) ŌɅǿzŸõşǿÆĿTä Ȓþ ȯzŸƮ

.Ʉøæ şÜ ȤĦȑ

$C_{24}H_{20}N_2$ ،**Diphenylbenzidine R** ȡɅÆɅÂÅæ ŌĿÆĿz ɄəÅþ

.ȤĿÅƪä ɃáÅƞÀÅæ ɉzŸǪƞ şÜ ȒĿæÜ ÛɃǿzŸæ ȧzĦÊƞ *.Ȥòzäi*

.R ɉzǪĿèɉäş TS (ȯ/ȟ 750~) ȯzφÅǯɅɋä Ž ɉÅşǾöä ǴĿĦɄì ÜŏÅţä Ž āäşæ Ƙȡ *.ǦĿƞÅşǾöä*

[illegible] 250-246 °.

[illegible] *sulfated ash* [illegible] 1.0 [illegible].

[illegible] *nitrates* [illegible] 8 [illegible] (~1750 [illegible])
[illegible] TS 5 [illegible].

[illegible] **Diphenylcarbazone R** $C_{13}H_{12}N_4O$ (SRIP 1963 [illegible] 81).

[illegible] **Diphenylcarbazone/ethanol TS** [illegible] R [illegible]
[illegible] (~750 [illegible]) TS [illegible] 1 [illegible] $C_{13}H_{12}N_4O$.

[illegible] **Diphenyl ether R** [illegible] $C_{12}H_{10}O$.

[illegible]. [illegible]

miscibility [illegible] R [illegible]
[illegible].

[illegible]. 259 [illegible] °.

[illegible]. 28-26 °.

[illegible] **2,5-Diphenyloxazole R** PPO [illegible] $C_{15}H_{11}NO$ [illegible]
scintillation counting.

[illegible] **Dipotassium hydrogen phosphate R** K_2HPO_4 (SRIP 1963 [illegible]
81 [illegible]).

[illegible] **Disodium edetate R** $C_{10}H_{14}N_2NaO_8, 2H_2O$ (SRIP 1963 [illegible] 82).

[illegible] **Disodium edetate** [illegible] **0.05** [illegible] **VS** [illegible] R [illegible]
[illegible] 16.71 [illegible] $C_{10}H_{14}N_2Na_2O_8$ [illegible] 1000 [illegible].

standardization [illegible]
[illegible] 200 [illegible] R2 [illegible] 400 [illegible] 10 [illegible]
[illegible] *slurry* [illegible] 2 [illegible]
[illegible] TS (~70 [illegible]) [illegible]
[illegible]
[illegible] 100 [illegible]

[illegible] 10 [illegible] 50 [illegible] burette [illegible] 30 [illegible]
[illegible] R [illegible] 0.3 [illegible] TS (70~) [illegible]
[illegible] R [illegible]
(0.05) [illegible] 1 [illegible] 5.005 [illegible]
.VS

[illegible] **Disodium hydrogen phosphate, anhydrous, R** [illegible]
.(193 [illegible] 1963 SRIP) Na_2HPO_4 . R [illegible]

.(85 [illegible] 1963 SRIP) C_2H_5OH ،**Ethanol, dehydrated, R** [illegible]

.(84 [illegible] 1963 SRIP) R ([illegible] 95) [illegible] **TS** [illegible] **750~ Ethanol** [illegible]

(750~) [illegible] ،**Ethanol, sulfate-free, TS** [illegible] **750~** [illegible]
2 [illegible] TS (750~) [illegible] 25 [illegible] TS
[illegible] 5 [illegible] 42 [illegible] TS (70~) [illegible] 3 [illegible]
[illegible] .(113 [illegible]) "[illegible]" [illegible] .TS [illegible]
.[illegible] 20 [illegible] TS [illegible] (750~) [illegible]

.[illegible] 1000 [illegible] TS (750~) [illegible] 950 [illegible] .**TS** [illegible] **710~** [illegible]

.[illegible] 1000 [illegible] TS (750~) [illegible] 525 [illegible] .**TS** [illegible] **375~** [illegible]

.[illegible] 1000 [illegible] TS (750~) [illegible] 210 [illegible] .**TS** [illegible] **150~** [illegible]

.(85 [illegible] 1963 SRIP) $C_4H_{10}O$.**Ether R** [illegible]

.(86 [illegible] 1963 SRIP) $C_4H_8O_2$.**Ethyl acetate R** [illegible]

،$C_4H_{10}O_2$ ،**Ethylene glycol monoethyl ether R** [illegible]
.[illegible] *.[illegible]*
.R [illegible] R [illegible] TS (750~) [illegible] *.miscibility [illegible]*
.°[illegible] 135 [illegible] 133 [illegible] %95 [illegible] *.[illegible]*
.[illegible] 0.93 [illegible] .(Q_{20}) *Mass density [illegible]*

[illegible] 1963 SRIP) $FeNH_4(SO_4)_2, 12H_2O$ ،**Ferric ammonium sulfate R** [illegible]
.(88

ÿzǂqznjȋ ğȦÀŸè ȸ ȯzŸȚ .TS ȯ ȟ 45 **Ferric ammonium sulfate** ȬǀÆǀÆΣǟş ÿzǂqznjȋ ğȦÀŸè ȯzŸȚ

.$FeNH_4(SO_4)_2$ ȸ ȯ/ȟ 45 ǦǟǟÀǂ Ƀzʒ R ȬǀÆǀÆΣǟş

.(88 ǦĦȦÔǟǟ Û1963 ÛSRIP) $FeCl_3,6H_2O$.**Ferric chloride R** ȬǀÆǀÆΣǟ ÆǀǿzŸȭ

ȯ/ȟ 27 ǦǟǟÀǂ Ƀzʒ R ȬǀÆǀÆΣǟ ÆǀǿzŸȭ ȸ ȯzŸȚ ،TS ȯ ȟ 25 **Ferric chloride** ȬǀÆǀÆΣǟ ÆǀǿzŸȭ ȯzŸȚ

.$FeCl_3$ ȸ

ǦĦȦÔǟǟ Û1963 ÛSRIP) $FeNH_4(SO_4)_2, 6H_2O$ ،**Ferrous ammonium sulfate R** ǟşÆǀÆΣǟş ÿzǂqznjȋ ğȦÀŸè

.(89

ÿzǂqznjȋ ğȦÀŸè ȸ ȯzŸȚ .TS ȯ ȟ 1 **Ferrous ammonium sulfate** ǟşÆǀÆΣǟş ÿzǂqznjȋ ğȦÀŸè ȯzŸȚ

.$FeNH_4(SO_4)_2$ ȸ ȯ/ȟ 1 ǦǟǟÀǂ Ƀzʒ R ǟşÆǀÆΣǟş

.(90 ǦĦȦÔǟǟ Û1963 ÛSRIP) $FeSO_4, 7H_2O$ ،**Ferrous sulfate R** ǟşÆǀÆΣǟ ğȦÀŸè

ǻƎnş ɄŸ8n ǒȦn Ž R ǟşÆǀÆΣǟ ğȦÀŸè ȸ ȯzŸȚ .TS ȯ ȟ 15 **Ferrous sulfate** ǟşÆǀÆΣǟ ğȦÀŸè ȯzŸȚ

.(ȯ/ȯzn 0.1 ǟǿȦÕł Ȧn) $FeSO_4$ ȸ ȯ/ȟ 15 ǦǟǟÀǂ ʔŸʒ ɃzǪĦǂ ʓǟȦü ȮȮÎǟ

.ǂǅǟȦü ǂÀȒȚTS (ȯ/ȟ 15) ǟşÆǀÆΣǟ ğȦÀŸè ȯzŸȚ ȷzǑǀ ȷ Ƶ .*ǦȚǵŶn*

.**VS** ȯ ȯzn **0.1** **Ferrous sulfate** ǟşÆǀÆΣǟ ğȦÀŸè ȯzŸȚ

ǦǂȶȬ ȢȦȒǩş ÛʓǟȦü ȮȮÎǟ ǻƎnş ɄŸ8n ǒȦn ȸ Ȭn 90 Ž R ǟşÆǀÆΣǟ ğȦÀŸè ȸ ȟ 2.8 ǟǟǾł .*ǒǟǅqǟ*

.Ȭn 100 ʓȦǪq TS (ȯ/ȟ 1750~) ȬǀǿzȦŸÊǟ Ȁþ ȯzŸȚ ȸ ǦǂzȦȭ

:ǦǂȬȦǪǟ ǦȬǀÀÛǟ ÆÊɯ ȯ/ȯzn 0.1 ȯzŸĦȶŸȭ ĘǂęÆǟ ÂǂȭÀǪǟ ȸ ĘȬĦǪǟ ʅǪǀ .*standardization* *ÈǂȬǪǟ ǦȬǀÀü*

ÀǀÀĦǩş TS (ȯ/ȟ 1.440~) ȬǀǿzȦÊǀǟ Ȁþ ȯzŸȚ ȸ Ȭn 5 ǟşÆǀÆΣǟ ğȦÀŸè ȯzŸȚ ȸ Ȭn 40.0 Ƃ ȢȦȒł

.VS (ȯ/ȯzn 0.02) potassium permanganate ÿzǂèÀǩzǦǟ ğȦǪȦ8ȦnǨǟ ȯzŸĦȶê ǂǿzz

.ȯȦȶĦǪèɍǟ ȬǦę ǥÀȉȦǦn Èǂǂł .*ǦȚǵŶn*

ǦĦȦÔǟǟ Û1963 ÛSRIP) CH_2O_2 . R ȬǂnǿzȦǟǟ Ȁþ TS ȯ ȟ **1080~** **Formic acid** ȬǂnǿzȦǟǟ Ȁþ ȯzŸȚ

.*d*~1.2 (92

.ǦǦèȦÀn ǥşȦȬÀǟ ÿŸȽ ،**Gelatin R** ÿŸǂǟ

.ȯ/ȟ10 ǦǟǟÀǂ Ƀzʒ TS Û7.0 ǒȦȽȦǦǟ Ûğ ȦÀÊǀǟ ǦǝǿǟǻŽ ǟǟǾǂǟ R ÿŸȚǟ ȸ ȯzŸȚ ،**Gelatin TS** ÿŸȚǟ ȯzŸȚ

ğǟǿÆǂȚǟ ɃǻȦǥǂ ǟzǪǟǨǟzȭzŸȡ ،**Glucose hydrate R** ǟzȭzŸ8ǟǟ ğǟǿÆǂȽ

ȸʒ ÆǀÂǀ ɍş %99.0 ȸʒ ȬǀǀÛɍ Ȧn ʔŸʒ ɃzǪʒ .$C_6H_{12}O_6, H_2O$ Ûmonohydrate of α-D-glucopyranose

101.5% [illegible] $C_6H_{12}O_6$ [illegible].

[illegible].

[illegible] 1 [illegible] 60 [illegible] (~750 [illegible]) TS [illegible]

[illegible] (~750 [illegible]) TS.

acidity [illegible] 5 [illegible] 50 [illegible] R. [illegible]

[illegible] 0.5 [illegible] (0.02 [illegible]) VS [illegible]

[illegible] TS [illegible].

specific optical rotation [illegible] 100 [illegible] 1 [illegible]

[illegible] (~100 [illegible]) TS $[\alpha]_D^{20^\circ C}$ = +52 to +53.

soluble starch or sulfates [illegible] 1 [illegible] 10 [illegible] 1 [illegible]

[illegible] TS [illegible].

[illegible] 105 [illegible] 80 [illegible] 100

[illegible].

sulfated ash [illegible] 1.0 [illegible].

assay [illegible] 0.1 [illegible] 50 [illegible] 30 [illegible] (0.1

[illegible] 20 [illegible] 15 [illegible] (50 [illegible]) TS [illegible] 10 [illegible] VS [illegible] (0.1

[illegible] (70 [illegible]) TS [illegible] (0.1

[illegible] TS [illegible] VS [illegible] 1 [illegible]

[illegible] (0.1 [illegible]) VS [illegible] 9.008 [illegible] $C_6H_{12}O_6$.

Glycerol R [illegible] Propane-1,2,3-triol [illegible] $C_3H_8O_3$.

[illegible] 970 [illegible] $C_3H_8O_3$.

[illegible].

miscibility [illegible] (~750 [illegible]) TS [illegible] R [illegible]

R [illegible].

Mass density [illegible] (Q_{20}) [illegible] 1.256 [illegible].

refractive index [illegible] (n_D^{20}) [illegible] 1.469 [illegible].

[illegible] 1 [illegible] 1 [illegible] (~100 [illegible]) TS [illegible]

ȯζŸʈ ȡɳ ğāÀÛę 3 ȢÀȒłş ɄəÀʈā ÿÀȶΣā ȡɳ ţÂȕł .ÀÀȍ ɉÀæ ŌəÀÊǒā ɹζŸǪ ɍ ÜĘəÀęá 5 ǥÆɳ °ÿ 6 ǦDZǿÆǒÀæ ɄəÀɳ

.ĘəÀęá 5 ȯŸǹ ǞϙζŸǪɳ ŌəÀÊǒā ǴĠÔǪ ɍ ÜTS (ȯ/ȟ 40) ǦȒÀǒā ğāÀǪϕ

.Ōɳ/ɳŸɳ 0..5 ȡʒ ÆǪÂǪ ɍ .ǨǿŸÊʈā áǿɳÀǒā

.$C_{14}H_{12}N_2O_2$ Û2,2′-(Ethanediylidenedinitrilo) diphenol ،**Glyoxal bis(2-hyroxyanil) R** ȯÀÊõζĘŸȢǒā

ǒÀȒĘæ ğāǿζŸæ .Ȥȍζǒā

.TS (ȯ/ȟ 750~) ȡǹÀÊǒā ȯζϕÀǮǪɋā ȯζŸʈ Ž āāşǿ .ǦĘϕÀæşǾǒā

.°ÿ 2.5-2.3 .ǿÀȚÔϕɍā ǦDZǿá

Glyoxal bis(2-hyroxyanil) R ȯÀÊõζĘŸȢǒā ȡɳ ȯζŸʈ .**Glyoxal bis(2-hyroxyanil) TS** ȯÀÊõζĘŸȢǒā ȯζŸʈ

.$C_{14}H_{12}N_2O_2$ ȡɳ ȯ/ȟ 10 ǦāāÀǿ ɁŸʒ ɃşÀΣā TS (ȯ/ȟ 750~) ȯζϕÀǮǪɋā ȯζŸʈ Ž āāǾɧ

،**Green stock standard TS** ÀȒǹɉā ȡǪÂǪǭā ɃǿÀĘĦǬā ȯζŸʈ

ȡɳ Ōɳ 10.4ş ÛTS āÀĦȕÀǒā ɹζǒ ȯζŸʈ ȡɳ Ōɳ 20.1 ÛTS ǨǒÀæζȮǒā ɹζǒ ȯζŸʈ ȡɳ Ōɳ 3.5 ƂÛ ȢÀȒł .ǒāÀDZǪā

Ȑϸ ȯζŸĦȕȶê Ōɳ 1000 ƂÛ ƵǿÀÁł ÜTS ÆǪÆΣā ɹζǒ ȯζŸʈ ȡɳ Ōɳ 4.0 ş ÛTS ğÀɳşÀȮǒā ɄəÀǿ ɹζǒ ȯζŸʈ

.ǯÂȶłş ÛTS (ȯ/ȟ 10~) ŌǪǿζÀŸÊǒā

.He ȡɳ ȯ/Ōɳ 999.95 ȡʒ ŌŌǪ ɍ Àɳ ɁŸʒ ɃζǪƷ ،**He** ،**Helium R** ÿζĘŸĘTā

ǥÆǵş 50 ɁŸʒ ɃşÀΣā TS ɄĦȕŸʈā ȯζŸǂā ȡɳ ȴŌĦɳ ȯζŸʈ .**Heparinized saline TS** ɄøǪǿÀǤĘTā ɄĦȕŸʈā ȯζŸǂā

.Ōɳ 1 Ōõ Ž ȡǪǿÀǤĘTā ȡɳ ǦĘǒşá

.āÀèɉā ƙɳÀǪÊĘTā ȡɳ ȯ/ȟ 1.00 ɁŸʒ ɃζǪƷ ȯζŸʈ ،**Histamine, strong, TS** ÂõÀʈā ÛƙɳÀǪÊĘTā ȯζŸʈ

ȡɳ ÛǦĘùζĠȒɳ ǴϕşàζɳÛɳŸɳ 82.8 şÛ R ƙɳÀǪÊĘTā ğÀÀÊǮ ȡɳ ÛǦĘùζĠȒɳ ǴϕşàζɳÛɳŸɳ 138.1 āāǾł .ǒāÀDZǪā

.Ōɳ 50.0 ǯÀǪϕɋ ǒÀʈā ȡɳ ǿȢÀõ ǿāÆŌɳ Ž R ƙɳÀǪÊĘTā ÆǪǿζŸõşǿÆĘȽ ɄəÀǿ

ǦǪÀʒ ǦĘDZÀDZà ÀǪǿāζę Ž Û°ÿ 10-4 ȡʒ ÆǪÂǩ ɍ ǦDZǿá Ž TS ÂõÀʈā ƙɳÀǪÊĘTā ȯζŸʈ ɹÂÁł ɹÛ Æƺ .ȡǪÂÁǪǒā

.ǒζȒǒā ȡɳ ǦĘȶʈş ÛǥÀÀǪÔɧ ǦĘDZÀDZà ğāáāÆè ğāæ

.ǞɳζǪ 30 ȡɳ ȯζùÛ ǥÆɳ ŌȶĦǪÊł ɍ .ȡǪÂÁǪǒā Àȶʒ

.āÀèɉā ƙɳÀǪÊĘTā ȡɳ ȯ/ɳŸɳ 1.0 ɁŸʒ ɃζǪƷ ȯζŸʈ ،**Histamin TS** ƙɳÀǪÊĘTā ȯζŸʈ

.TS ɄĦȕŸʈā ȯζŸǂā ȡɳ ǦĘζÀõ ǦĘȶȮæ TS ÂõÀʈā ƙɳÀǪÊĘTā ȯζŸʈ ƵĘÀÁǪæ TS ƙɳÀǪÊĘTā ȯζŸʈ ÀȒĦł .ǒāÀDZǪā

.ǨȒĦǪǒā ǯàÀùTS ƙɳÀǪÊĘTā ȯζŸʈ ɹζȮǪ ɹÛ Æƺ .ǦȚǵŸɳ

ȡʒ ŌŌǪ ɍ Àɳ ɁŸʒ ɃζǪƷ .$C_5H_9N_3,2HCl$ ،**Histamine dihydrochloride R** ƙɳÀǪÊĘTā ÆǪǿζŸõşǿÆĘȽ ɄəÀǪϕ

.ǦÀÀDZʈā ǥáÀʈā ƂÛ ţζDZÀǒÀæ ǦāζÊʈ Û$C_5H_9N_3,2HCl$ ȡɳ %101.0 ȡʒ ÆǪÂǪ ɍş Û%98.0

.ǦHǝăÀöă ÇÆ3 ÜȷzŸöă ȐĔăÛ ɃøzŸă ȧzHÊɳ şÛ ȷzŸöă ǦƩÆ3 ǧăøzŸă . *Zöză*

.TS (ȯ/ȟ 750~) ȯzφǺǅq ȯzŸȚ Ž āăşæ ÜR ȯzφǺǅŧ Žş ŏǺŧ Ž ȷǺşØöă Àǵ . *ǦȟǺşØöă*

.°ÿ 246-244 . *øǺTÔφɍ ȯǺƒ*

.ȟ/ŋŸɳ 5.0 ȸ3 ÆÂÀ ɍ . *ZǺÐzφöǺ ÆÕÀöă*

Ȭɳ 25ş R ÿøzzşøzŸÒöă ȸɳ Ȭɳ 5 ȣǺȒł .ŏǺŧ ȸɳ Ȭɳ 10 Ž ÛǦùzǦȒɳ Ǧφşàzɳ Ûȟ 0.15 ǦăǺÀ ā ăØł . *ǦÊǺÕŧ*

(ȯ/ȯzɳ 0.2) ǧǺφzăÀÒöă ȸɳ ƃǺǇ ÿzǺázÔöă ÆÊÕşøÆŁ ȯzŸHŧê ÀǺȞł .TS (ȯ/ȟ 750~) ȯzφǺǅq ȯzŸȚ ȸɳ

ÆÊÕşøÆŁ ȯzŸȚ ȸɳ Ȭɳ 1 Ȭõ .ÀȞÎŧõ TS ȯzφǺǅq/ƙǺöǺǅz ȯzŧǅöă ȯzŸȚ ȸɳ Ȭɳ 0.5 ÿăÆǺφèǺă ÛVS

.$C_5H_9N_3,2HCl$ ȸɳ ŋŸɳ 9.21 ùzǺÒł VS (ȯ/ȯzɳ 0.2) ǧǺφzăÀÒöă ȸɳ ƃǺǇ ÿzǺázÔöă

ÆÂÀ ɍş %98.0 ȸ3 ȬǺ ɍ Ǻɳ ʔŸ3 Ƀz3 .$C_5H_9N_3,2H_3PO_4$ ،**Histamine phosphate R** ƙɳǺÊTă ǧǺÊǅ

.ǦŀǝǺɳȲöă ǵǺŧ ƃÛ ţzÐZÀöǺă ǦăzÊȚ Û$C_5H_9N_3,2H_3PO_4$ ȸɳ %101.0 ȸ3

.ŏăzTă Ž ǦφăǺφ .ǦHǝăÀöă ǦƩÆ3 ÜȷzŸöă ǦƩÆ3 ÛǦŸǺzù ÛǦǺøzȉzɳ ǧăøzŸă . *Zöză*

.TS (ȯ/ȟ750~) ȯzφǺǅq ȯzŸȚ Ž ȷǺşØöă ǦHŧHȉ ÜŏǺŧ ȸɳ ŏăÂÐZÛ 5 ǦăǺÀ Ž Ǧăşǅ . *ǦȟǺşØöă*

.°ÿ 132 ǦăǺÀ . *øǺTÔφɍ ǵøǺǵ ǦÐZøǵ*

.ȟ/ŋŸɳ 60-50 zŁ ŏǺŧ ȸɳ ʔzφǂă Ûȟ 1.0 ǦăǺÀ ȯǺŧȞφèǺă ÛÀÎEz ȯøǺõ ǦÕÀÛă ȸȞł .*water ŏǺŧ*

Ȭɳ 25ş R ÿøzzşøzŸÒöă ȸɳ Ȭɳ 5 ȣǺȒł .ŏǺŧ ȸɳ Ȭɳ 10 Ž ÛǦùzǦȒɳ Ǧφşàzɳ Ûȟ 0.15 ǦăǺÀ ā ăØł . *ǦÊǺÕŧ*

(ȯ/ȯzɳ 0.2) ǧǺφzăÀÒöă ȸɳ ƃǺǇ ÿzǺázÔöă ÆÊÕşøÆŁ ȯzŸHŧê ÀǺȞł .TS (ȯ/ȟ 750~) ȯzφǺǅq ȯzŸȚ ȸɳ

ÆÊÕşøÆŁ ȯzŸȚ ȸɳ Ȭɳ 1 Ȭõ .ÀȞÎŧõ TS ȯzφǺǅq/ƙǺöǺǅz ȯzŧǅöă ȯzŸȚ ȸɳ Ȭɳ 0.5 ȯǺŧȞφèǺă VS

.$C_5H_9N_3,2H_3PO_4$ ȸɳ ŋŸɳ 15.36 ùzǺÒł VS (ȯ/ȯzɳ 0.2) ǧǺφzăÀÒöă ȸɳ ƃǺǇ ÿzǺázÔöă

ȸɳ ÆǝăzÎöă ȷzÒφǩ ÛHo_2O_3 ȸɳ %99.9 ȸ3 ȬǺ ɍ Ǻɳ ʔŸ3 Ƀz3 .Ho_2O_3 .**Holmium oxide R** ÿzŧzTă ÆÊÕǺ

.Dy_2O_3ş Er_2O_3

.Àþɉă ƃÛ āøǺȑ ȷzŸă ȧzHÊɳ . *Zöză*

.ŏǺŧ Ž āăşæ Ƙɖ . *ǦȟǺşØöă*

،**Holmium perchlorate TS** ÿzŧzTă ǧăøzŸÕƘă ȯzŸȚ

TS (ȯ/ȟ 140~) ȬǺøzŸÕƘöă Ȓþ ȯzŸȚ ȸɳ ȣǺõ øÆȬɳ Ž R ÿzŧzTă ÆÊÕǺ ȸɳ ȟ 40 ā ăØł ، *ŏăÐZq*

.Ȭɳ 1000 ǯǺφq

Û1963 ÛSRIP) HI . R ȬǺázǺøÆTă Ȓþ .**TS ȯ ȟ 970~ Hydriodic acid** ȬǺázǺøÆTă Ȓþ ȯzŸȚ

.(95 ǦHǺÔöă

. R Û3ĜÎţä ÛȬÁøźŸõşøÆŒTä R̀ þ .TS ȯ ȟ 420~ Hydrochloric acid ȬÁøźŸõşøÆŒTä R̀ þ ȯźŸŢ
.*d*~1.18 Ü(96 ĜĦÀÔöä Û1963 ÛSRIP)

420~) ȬÁøźŸõşøÆŒTä R̀ȶΣ ȯźŸŢ .TS ȯ ȟ 250~ Hydrochloric acid ȬÁøźŸõşøÆŒTä R̀ þ ȯźŸŢ
.*d*~1.12 ÜHCl ȡ ȯ/ȟ 250 ǟøÅÕ̇Á Åŋ ʔŸȝ ɃźǪȜ ÛöÅţä Ž TS (ȯ/ȟ

250~) ȬÁøźŸõşøÆŒTä R̀ þ ȯźŸŢ .Hydrochloric acid ȯ ȟ 250 AsTS ȬÁøźŸõşøÆŒTä R̀ þ ȯźŸŢ
:BŞ A ƙŒöÅǪöä ȡÁøÅĜǪǹɍä ɄøĜŸł ɃØöä TS (ȯ/ȟ

(ȯ/ȟ 75) ȳźŒǫźŋɉä ǧÅǫÅŒèźŒǫ ȯźŸŢ ȡ Ō̇ŋ 5 ȣÅR̂ł ÛŌ̇ŋ 50 ǯÅǪǫq ŏÅţä ȡ ȡȣÅõ øäÆŌ̇ŋ Ō̇ŋ 10 ȤȧǺł .A
.ȷźö ɃÜ ǰǪÁÁ ɍ ÜĝÀ̀ïÅĜŋ ȭÅ̀ĦÛłş TS

ȣÅR̂ł ÛŌ̇ŋ 16 ɃÜ ȯÅ̀ǪǺł ʔøǪǵ ɄǝÅŋ ȳÅþ ʔŸȝ ÀǺĜł ÛAsTS ȳşɜöä ȡ Ō̇ŋ 0.2 øäÆŌ̇ŋ Ō̇ŋ 50 ɃÜ ȣÅR̂ł .B
ÛȷźŸöä ȡ Ȭöǽ ʔŸȝ ȭÆǪÊł ÛȼÅŋ ĝǻÁÁà ǻźǱş ȡ ÆõüǪŸö ȦÁøşÀ̀ȓ ȷÅõ äǽÜ AsTS ȳşɜöä ȯźŸŢ ȡ ɜõÜ øäÆŌ̇ŋ
stannous chloride AsTS ɃÀ̀ÁÆÔÕ̇öä ÆÁøźŸõ ȯźŸŢ ȡ ǧäÀ̀Ûę 5ş ŏÅţä ȡ Ō̇ŋ 50 ȣÅR̂ł .ƘǺĜǪöä ĝÆŋ ȯäźü
ȡ ǰǪÁÁ ɃØöä Ȭöǽ ȡ ĝÆ̀ï ÀǯõÜ ĜƟÅÁöä ĜǺÛǨöä ȷźö ȷźȮÁ ɍ .(ǸŒǫøÂöä) ȬŒÆŒèøɉä ŌǱɉ ȳÅ̀Ħöä øÅĜǪǹɍä ĘĜÛłş
.Ō̇ŋ/ȳäÀ̀ȡşÀ̀Ōŋ 0.05 ʔŸȝ ÆÁÂÁ ɍ ȬŒÆŒèøɉä øäÆŌ̇ŋ ȷÜ ʔŸȝ ĝÀ̀ȚŢȟ ÛĜÁøÅŒȞǭ ĜǺÛǭ Ō̇ŋ 0.2

. AsTS ȯ ȟ 250~ Hydrochloric acid, stannated ɃøÆŒÔÕ̇öä ÛȬÁøźŸõşøÆŒTä R̀ þ ȯźŸŢ
250~) ȬÁøźŸõşøÆŒTä R̀ þ ȯźŸŢ ȡ ȡȣÅõ øäÆŌ̇ŋAsTS ɃÀ̀ÁÆÔÕ̇öä ÆÁøźŸõ ȯźŸŢ ȡ Ō̇ŋ 1 ȤȧǺł .*ŏäÀ̈Ǳqǟ*
.Ō̇ŋ 100 ǯÅǪǫq AsTS (ȯ/ȟ

.TS ȯ ȟ 70~ Hydrochloric acid ȬÁøźŸõşøÆŒTä R̀ þ ȯźŸŢ
1000 ǯÅǪǫq ŏÅţä ȡ ȡȣÅõ øäÆŌ̇ŋ TS (ȯ/ȟ 250~) ȬÁøźŸõşøÆŒTä R̀ þ ȯźŸŢ ȡ Ō̇ŋ 260 ȤȧǺł .*ŏäÀ̈Ǳqǟ*
.*d*~1.035 Ü(ȯ/ȯźŋ 2 ǟøÅÕ̇ł Åŋ) Ō̇ŋ

.Cl ȡ ȳäÀ̀ȡşÀ̀Ōŋ 50 ʔŸȝ ɃźǪȜ ÀǪö ɄŸŒŋ 1 Ō̇õ .Hydrochloric acid ClTS ȬÁøźŸõşøÆŒTä R̀ þ ȯźŸŢ
1000 ǯÅǪǫq ŏÅţä ȡ ȡȣÅõ øäÆŌ̇ŋ VS(ȯ/ȯźŋ 0.1) ȬÁøźŸõşøÆŒTä R̀ þ ȯźŸŢ ȡ Ō̇ŋ 14.3 ȤȧǺł .*ŏäÀ̈Ǳqǟ*
.Ō̇ŋ

(ȯ/ȟ 250~) ȬÁøźŸõşøÆŒTä R̀ þ ȯźŸŢ .VS ȯ ȯźŋ 2 Hydrochloric acid ȬÁøźŸõşøÆŒTä R̀ þ ȯźŸŢ
.Ō̇ŋ 1000 Ž HCl ȡ ȟ 72.93 ʔŸȝ ɃźǪĦŒö ŏÅţÅǽ ȤȧǺł ÛTS

ȷäźÅȝ ǨƠ Ĝźźòźţä ĜÕ̇ÁÀ̀Ûöä ţÅĜǨÅǽ ȯźŸĦȶŸö ĘŒęÆöä ÂŒõÀ̀Ǫöä ȡ ĘȬĦǪöä ȴǪÁ .*standardization* *È̀ŒŒǪöä ĜÕ̇ÁÀ̈ü*
.VS (ȯ/ ȯźŋ 1) ȬÁøźŸõşøÆŒTä R̀ þ ȯźŸŢ

(ȯ/ȟ 250~) ȬÁøźŸõşøÆŒTä R̀ þ ȯźŸŢ .VS ȯ ȯźŋ 1 Hydrochloric acid ȬÁøźŸõşøÆŒTä R̀ þ ȯźŸŢ

.Ōŋ 1000 Ž HCl ȸŋ ȟ 36.47 ʔΫ3 ɃζΩΗɄ ŏİţİæ ZȧİÁł ÛTS

ǦæäÀę āäØł :ǦɆöÄöä ǦÕÀÛöä ȯ/ȯζŋ 1 ȯζΫΗɫΫö ĘɆęÆöä ÂɆõÀöä ȸŋ ĘŌΗöä ʅΩ. *standardization ȄɆɆŌöä ǦŌÀü*

Ž ÛǦ3İè 1 ȝÆŋ °ÿ 270 ǦDZøÆöÀæ ȀÖǦÊŋ ǦÀȧDzţä ÛR ǦɆəÀŋɎöä ÿζÀáζÔöä ğÀφζæÀȹ ȸŋ ÛǦɆüζǦȒŋ Ǧφşàζŋ Ûȟ 1.5

.ÀĦÎɫõ TS ȯζφÀǯÀqä/ŌɆǯɆţä ǦɆöÀÕkÀæ ȯζΫȚ ȯÀɫĦΩèÀæ ÛȬÀøζΫõşøÆɆTä ȐȹȯζΫΗɫÊ ÀÀĦĦş ŏİţä ȸŋ Ōŋ 50

(ȯ/ȯζŋ 1) ȬÀøζΫõşøÆɆTä Ȑȹ ȯζΫȚ ȸŋ Ōŋ 1 üζİÓł R ǦɆəÀŋɎöä ÿζÀáζÔöä ğÀφζæÀȹ ȸŋ ŊΫŋ 52.99 Ōõ

.VS

(ȯ/ȟ 250~) ȬÀøζΫõşøÆɆTä Ȑȹ ȯζΫȚ .**VS** ȯ ȯζŋ **0.5 Hydrochloric acid** ȬÀøζΫõşøÆɆTä Ȑȹ ȯζΫȚ

.Ōŋ 1000 Ž HCl ȸŋ ȟ 18.23 ʔΫ3 ɃζΩΗɄ ŏİţİæ ZȧİÁł ÛTS

ȷäζÀ3 ǨƠ Ǧζζòζţä ǦÕÀÛöä ţÀǦǩÀæ ȯζΫΗɫΫö ĘɆęÆöä ÂɆõÀöä ȸŋ ĘŌΗöä ʅΩ. *standardization ȄɆɆŌöä ǦŌÀü*

.VS (ȯ/ ȯζŋ 1) ȬÀøζΫõşøÆɆTä Ȑȹ ȯζΫȚ

(ȯ/ȟ 250~) ȬÀøζΫõşøÆɆTä Ȑȹ ȯζΫȚ .**VS** ȯ ȯζŋ **0.1 Hydrochloric acid** ȬÀøζΫõşøÆɆTä Ȑȹ ȯζΫȚ

.Ōŋ 1000 Ž HCl ȸŋ ȟ 3.647 ʔΫ3 ɃζΩΗɄ ŏİţİæ ZȧİÁł ÛTS

ȷäζÀ3 ǨƠ Ǧζζòζţä ǦÕÀÛöä ţÀǦǩÀæ ȯζΫΗɫΫö ĘɆęÆöä ÂɆõÀöä ȸŋ ĘŌΗöä ʅΩ. *standardization ȄɆɆŌöä ǦŌÀü*

.VS (ȯ/ ȯζŋ 1) ȬÀøζΫõşøÆɆTä Ȑȹ ȯζΫȚ

250~) ȬÀøζΫõşøÆɆTä Ȑȹ ȯζΫȚ .**VS** ȯ ȯζŋ **0.015 Hydrochloric acid** ȬÀøζΫõşøÆɆTä Ȑȹ ȯζΫȚ

.Ōŋ 1000 Ž HCl ȸŋ ȟ 0.5470 ʔΫ3 ɃζΩΗɄ ŏİţİæ ZȧİÁł ÛTS (ȯ/ȟ

ȷäζÀ3 ǨƠ Ǧζζòζţä ǦÕÀÛöä ţÀǦüÀæ ȯζΫΗɫΫö ĘɆęÆöä ÂɆõÀöä ȸŋ ĘŌΗöä ʅΩ. *standardization ȄɆɆŌöä ǦŌÀü*

.VS (ȯ/ ȯζŋ 1) ȬÀøζΫõşøÆɆTä Ȑȹ ȯζΫȚ

250~) ȬÀøζΫõşøÆɆTä Ȑȹ ȯζΫȚ .**VS** ȯ ȯζŋ **0.01 Hydrochloric acid** ȬÀøζΫõşøÆɆTä Ȑȹ ȯζΫȚ

.Ōŋ 1000 Ž HCl ȸŋ ȟ 0.3647 ʔΫ3 ɃζΩΗɄ ŏİţİæ ZȧİÁł ÛTS (ȯ/ȟ

ȷäζÀ3 ǨƠ Ǧζζòζţä ǦÕÀÛöä ţÀǦüÀæ ȯζΫΗɫΫö ĘɆęÆöä ÂɆõÀöä ȸŋ ĘŌΗöä ʅΩ. *standardization ȄɆɆŌöä ǦŌÀü*

.VS (ȯ/ ȯζŋ 1) ȬÀøζΫõşøÆɆTä Ȑȹ ȯζΫȚ

ȸŋ ȟ 60 ǦæäÀę ʔΫ3 ɃζΩ3 ŏİţä Ž ȯζΫȚ .**TS** ȯ ȟ **60~ Hydrogen peroxide** ƙDZşøÆɆTä ÆɆÊõşƘæ ȯζΫȚ

.ÀΩö 1 Ōõ Ž H_2O_2

.(98 ǦΗÀÔöä Û1963 ÛSRIP) H_2S ،**Hydrogen sulfide R** ƙDZşøÆɆTä ÆɆÀΫè

.áøÀǦöä ŏİţä Ž R ƙDZşøÆɆTä ÆɆÀΫè ȸŋ 3ǦÎŀ ȯζΫȚ ،**Hydrogen sulfide TS** ƙDZşøÆɆTä ÆɆÀΫè ȯζΫȚ

.ƘȒΗΩä ǯàÀü TS ƙDZşøÆɆTä ÆɆÀΫè ȯζΫȚ ȷζÒÀ ȷÜ Æƶ .*ǦȚǵΫŋ*

.(101 ǴĦȦÔöä Û1963 ÛSRIP) I_2 ،**Iodine R** ǻƺĿöä

،**Iodine TS** ǻƺĿöä ȯƺŸȚ

Ȧŋ) Ōŋ 100 ǯȦQq ŏȦţä ȸŋ ǿȦõ øäǼŌŋ Ž R ÿƺĿèȦǩƺǴöä ǼȂǻƺȂ ȸŋ ȟ 3ş R ǻƺĿöä ȸŋ ȟ 2.6 ā äØł .*ǒäȂDZq*
.(ȯ/ȯƺŋ 0.1 ā øȦŌł

ʔŸʒ Ƀƺ(ĦĿö ŏȦţä ȸŋ ȣȦõ øäǼŌŋ Ž ÛR ÿƺĿèȦǩƺǴöä ǼȂǻƺȂş R ǻƺĿöä ā äØł .**VS** ȯ ȯƺŋ **0.1** **Iodine** ǻƺĿöä ȯƺŸȚ
.Ōŋ 1000 Ž KI ȸŋ ȟ 36.0ş I ȸŋ ȟ 25.38

ȯƺŸĦɫȇ Ōŋ 25.0 ǥȂȦȞɫȇ ȯ/ȯƺŋ 0.1 ȯƺŸĦɫŸö ĘĿęǼöä ȂĿõȀQöä ȸŋ ĘŌĦQöä ǈQȂ .*standardization* *ȀĿŌQöä ǦŌȂǖ*
.ȀȞÎɫõ ȦÎȂöä ȯƺŸȚ ȯȦɫȞQèȦǣ ÛVS (ȯ/ȯƺŋ 0.1) ÿƺȂǻƺÔöä ǧȦȂŸèƺĿǫ

Ƀƺ(ĦĿö ŏȦţä ȸŋ ȣȦõ øäǼŌŋ Ž ÛR ÿƺĿèȦǩƺǴöä ǼȂǻƺȂş R ǻƺĿöä ā äØł .**VS** ȯ ȯƺŋ **0.02** **Iodine** ǻƺĿöä ȯƺŸȚ
.Ōŋ 1000 Ž KI ȸŋ ȟ 7.2ş I ȸŋ ȟ 5.076 ʔŸʒ

ȷäƺȂʒ ǨƠ Ǵƺƺòƺţä ǦŌȂÛöä ţȦǨǖǣ ȯƺŸĦɫŸö ĘĿęǼöä ȂĿõȀQöä ȸŋ ĘŌĦQöä ǈQȂ .*standardization* *ȀĿŌQöä ǦŌȂǖ*
.VS (ȯ/ȯƺŋ 0.1) ǻƺĿöä ȯƺŸȚ

Ƀƺ(ĦĿö ŏȦţä ȸŋ ȣȦõ øäǼŌŋ Ž ÛR ÿƺĿèȦǩƺǴöä ǼȂǻƺȂş R ǻƺĿöä ā äØł .**VS** ȯ ȯƺŋ **0.01** **Iodine** ǻƺĿöä ȯƺŸȚ
.Ōŋ 1000 Ž KI ȸŋ ȟ 3.6ş I ȸŋ ȟ 2.538 ʔŸʒ

ȷäƺȂʒ ǨƠ Ǵƺƺòƺţä ǦŌȂÛöä ţȦǨǖǣ ȯƺŸĦɫŸö ĘĿęǼöä ȂĿõȀQöä ȸŋ ĘŌĦQöä ǈQȂ .*standardization* *ȀĿŌQöä ǦŌȂǖ*
.VS (ȯ/ȯƺŋ 0.1) ǻƺĿöä ȯƺŸȚ

،IBr ،**Iodine bromide R** ǻƺĿöä ǼĿŋşȀǣ

.ɫǴöä Ƃ ā øȦȓ ǻƺèȦ şȦ ȧøàɉä Ƃ ā øȦȓ ǻƺèȦ ȷƺŸǣ ǧäøƺŸǣ .*Ƶòƺöä*
Ȑþş ÛR Ʀǭɉäş ÛR ÿøƺƺşøƺŸȮöäş ÛTS (ȯ/ȟ 750~) ȯƺQȦǯȂqä ȯƺŸȚ Žş ÛŏȦţä Ž ȷȦǣşØöä Ȁǥ .*ǦQȦǣşØöä*
.R ɄDzŸǯöä ŌĿQĿèɉä

.°ÿ 40 ǴäȀǣ .*øȦTÔQrä ǥøäȀǥ ǴDZøä*

.ŏƺȒöä ȸŋ ǴĦɫȚ ÛȧŸȡqä ǴɫȮȚ ǴȂşȦǵ Ž ÛǻøȦǣ ȷȦȮŋ Ž ȷÂǺł .*ȸȂǺQöä*

،**Iodine bromide TS** ǻƺĿöä ǼĿŋşȀǣ ȯƺŸȚ

.Ōŋ 1000 ǯȦQq R ɄDzŸǯöä ŌĿQĿèɉä Ȑþ ȸŋ ǿȦõ øäǼŌŋ Ž R ǻƺĿöä ǼĿŋşȀǣ ȸŋ ȟ 20 ā äØł .*ǒäȂDZq*
.ŏƺȒöä ȸŋ ǴĦɫȚ ÛȧŸȡqä ǴɫȮȚ ǴȂşȦǵ Ž ȷÂǺł .*ȸȂǺQöä*

،**Iron colour, strong, TS** ȂõȀţä ÛǼȂǼΣä ȷƺȯ ȯƺŸȚ

ÛTS (ȯ/ȟ 10~) ŌȂøƺȦŸÊöä Ȑþ ȯƺŸȚ ȸŋ Ōŋ 120 Ž R ŌȂǼȂǼΣä ǼȂøƺŸõ ȸŋ ȟ 6.6 ā äØł .*ǒäȂDZq*

[illegible] $FeCl_3,6H_2O$.

[illegible] 10.0 [illegible] 25.0 [illegible] 5.0 [illegible] *assay* [illegible]

[illegible] 60 [illegible] 3-2 [illegible] (v/v 1) VS [illegible]

[illegible] 15 [illegible] R. [illegible] TS (~100 g/l) [illegible]

[illegible] 2 [illegible] VS (0.05 mol/l) [illegible]

sulfosalicylic acid TS (175 g/l) [illegible]

[illegible] 1 [illegible] vs (0.05 mol/l) [illegible] 13.52 [illegible] $FeCl_3,6H_2O$.

Iron colour TS [illegible] 45.0 [illegible] $FeCl_3,6H_2O$.

Iron standard TS [illegible] 4.500 [illegible] $FeCl_3,6H_2O$ [illegible] 100 [illegible] TS

[illegible] TS (~10 g/l) [illegible].

Iron standard FeTS [illegible]

[illegible] 0.173 [illegible] R [illegible] 100 [illegible] 5 [illegible]

[illegible] TS (~70 g/l) [illegible] 1000 [illegible] 1 [illegible]

[illegible] 20 [illegible].

Karl Fischer reagent TS [illegible] 5.0 [illegible] g/l

[illegible] 2.5 [illegible] 1 [illegible]

[illegible].

[illegible] 63 [illegible] R [illegible] 100 [illegible] R anhydrous pyridine [illegible]

[illegible] sulfur dioxide R [illegible] 32 [illegible]

[illegible] R [illegible] 500 [illegible]

[illegible] TS [illegible]

[illegible] 24 [illegible]

[illegible].

standardization [illegible] 20 [illegible]

[illegible] R [illegible] TS [illegible]

[illegible]

[illegible] TS [illegible]

[illegible] hydrated [illegible]
[illegible] TS [illegible] 1 [illegible]
[illegible]

[illegible] Ethylene glycol monoethyl ether R [illegible]
.R [illegible]

[illegible] %97.0 [illegible] .$La(NO_3)_3,6H_2O$.**Lanthanum nitrate R** [illegible]
.$La(NO_3)_3,6H_2O$
[illegible]
[illegible]

[illegible] 3 [illegible] 25 [illegible] 0.75 [illegible] *assay* [illegible]
xylenol orange R [illegible] 20 [illegible] R [illegible] 3 TS [illegible] 130~)
[illegible] VS [illegible] 0.05) [illegible]
[illegible] 1 [illegible] R [illegible]
.$La(NO_3)_3,6H_2O$ [illegible] 21.65 [illegible] VS [illegible] 0.05) [illegible]

Lanthanum nitrate TS [illegible]
[illegible] TS [illegible] 130~) [illegible] 1 [illegible] R [illegible] 4.3 [illegible]
[illegible] 100 [illegible]

[illegible] 100 [illegible] 1 [illegible] **Lead, strong, PbTS** [illegible]
[illegible] TS [illegible] 1000~) [illegible] 5 [illegible] R [illegible] 0.1598 [illegible]
[illegible] 1000 [illegible]

[illegible] 10 [illegible] 1 [illegible] **Lead, dilute, PbTS** [illegible]
[illegible] 100 [illegible] PbTS [illegible] 10 [illegible]
[illegible]

[illegible] 105 [illegible] 1963 SRIP) $C_4H_6O_4Pb,3H_2O$ **Lead acetate R** [illegible]
[illegible] R [illegible] **TS** [illegible] **80 Lead acetate** [illegible]
[illegible] 0.25 [illegible] $C_4H_6O_4Pb$ [illegible] 80 [illegible]

[illegible] 107 [illegible] 1963 SRIP) $Pb(NO_3)_2$ **Lead nitrate R** [illegible]

ǦäǟÀǫ ²Ÿ ʒ Ƀ ʐǪĦʋǂö ŏÀʈǟ Ž Ǧäǟ Ǿʮ Ûʀ î ÀòÀöä ğäÀǪ ȯʐŸȚ **0.05 Lead nitrate** î ÀòÀöä ğäÀǪ .**VS** ȯ ȯʐɳ

.Ōɳ 1000 Ž $Pb(NO_3)_2$ ȸɳ ȟ 16.56

Ōɳ 25.0 ʐǂÀÁǪ ȯ/ȯʐɳ 0.05 ȯʐŸĦʋʈŸö ĘǂęǢöä ÂǂõÀǪöä ȸɳ ĘŌĦʋǪöä ʅǪÀ *.standardization ȀǂǪÕöä ǦŎÀü*

ǻʐè ÀĤÎɳ ǰÀÂɳ ȸɳ ŋŸɳ 20 ǦäǟÀǫʂ TS ǼǫʐɳɈ ǦǝǿäǺ ȯʐŸȚ ȸɳ Ōɳ 10 ȣÀȒɫ ÛöÀʈǟ ȸɳ Ōɳ 200 ǿäǢŌɳ

.VS (ȯ/ȯʐɳ 0.05) ȳʐÀǻʐÔöä ğÀǪǢÀ ȯʐŸĦʋʈê ÀÀĤɫʂ Ûʀ 11 ǨǫäǻǿʐɳQ

.LiClO₄ .**Lithium perchlorate R** ȳʐǂǯǂŸöä ğäǿʐŸõǨä

.gǨ8ò ğäǿʐŸä *.ʐòʐöä*

Ûʀ ǨǪɈä Ûʀ ɹʐǪǂèɈä ÛTS (ȯ/ȟ 750~) ȯʐǫÀǯÀɋä ȯʐŸȚ Ž ɹÀǟʂǾöä ǴǂĦʋì ÜöÀʈǟ Ž ɹÀǟʂǾöä Àǵ *.ǦǂǫÀǟʂǾöä*

.R ŌǂǯÀɋä ğÀǪǂèÜʂ

.**Lithium perchlorate/acetic acid TS** ȬǂǪǂèɈä Ȑƥ ȳʐǂǯǂŸöä ğäǿʐŸõǨä ȯʐŸȚ

ǯÀǪɋ R1 ɄDzŸǯöä ȬǂǪǂèɈä Ȑƥ ȸɳ ȣÀõ ǿäǢŌɳ Ž R ȳʐǂǯǂŸöä ğäǿʐŸõǨä ȸɳ ȟ 10.64 āäǾɫ *.ŏäÂDzɋä*

.Ōɳ1000

ÛöÀʈäʂ ǨŸǂǯÀɋä ǢǂÊõǧ ÀʈŸǂ ʐȽ R 400 ȯʐȡʂÀõÀʈä .400 ȯʐȮǂŸ8öä ǢÀǢʒ ǨŸǂǯÀɋä .**Macrogol 400 R** ȯʐȡʂÀõÀʈä

.9.1ʂ 8.2 Ǩä ǼĦęäʂ n Ǧʈǂę Ùèʐǫɳ ȼʐ ɹʐȮÀ ɃǾöä ÛH(OCH_2CH_2)$_n$OH Ǧ8ǂÔöä ǦÛèäʐä Ōǯʈɫ

.ǼŸǂę hygroscopic ǢüÀǪÊɳ ÜǦÀǢÀǹ ǧÀȽʈɳ ǦĦʋäǿ ȼö ʒÂö (ǼŸʈʒ ɹʐŸöä ȻǢʒ ʂÜ) ɹʐŸöä ȻǢʒ ŌǝÀè *.ʐòʐöä*

ÛǦǂüʐǴȒɳ ǦǫʂàʐɳÛʀ 400 ȯʐȡʂÀõÀʈä ȸɳ ȟ 2.1 ŌŌÀɫ *.average molecular weight ɄÛèʐöä ɄÀÀÂƨä ɹàʐöä*

ʐŸɫ ÛǦŸDzʐΣä Ž ǧäǢÊöä ŌǹǢɫ .TS ȸÀǢÀǨǦöä/ȬǂöÀǯÀöä ǢÀǿǢǂŒÜ ȯʐŸȚ ȸɳ Ōɳ 25.0ʂ ÛÙ8ȓ ǦŸDzʐǵ ƂÜ

Ž ǰÀÂʈä Ęʈʒ ƂÜ Û°ȳ100-96 ǧÀŌǪÊɳ ǧǿäÀǵ ǦDzǿǻ Ž ɄǝÀɳ ȳÀƥ Ž ȀÛ8ɫʂ ÛȇÀʈŌöÀä ȸɳÜ ŌȮÎä ǦŸDzʐΣä

ǦDzǿǻ ²øǪǵ ŏäʐȚä Ž ǻƎǪö õÀǪɫʂ ÛȇÀʈŌöä ǦʐÀÀǺ ǨǂǦǯǩ ǻÀĤɫʂ ÛǦŸDzʐΣä ʈÂÀɫ .Ǧʒ Àè 1 ǧǢɳ ÛȼÊÀǫ ǦŸDzʐΣä

0.5) ğÀǫʐäÀȮöä ȸɳ ƂÀʅä ȳʐÀǻʐÔöä ǢǂÊõʂǿǢȽ ȯʐŸȚ ȸɳ Ōɳ 50 ǦŸDzʐΣä ğÀɭʐǪȚ ƂÜ ȣÀȒɫ .ǦʐÀ8öä ǧǿäÀǵ

ȸɳ ƂÀʅä ȳʐÀǻʐÔöä ǢǂÊõʂǿǢȽ ȯʐŸĦʋʈê ÀÀĤɫ .TS ȸÀǢÀǨǦöä/ǨÀöÀǯʐ ȯʐǢÀöä ȯʐŸȚ ȸɳ ğäÀÛę 5ʂ VS (ȯ/ȯʐɳ

ÂDzÀɫ .ǦǂǫÀǪ 15 ȸʒ ŌŌÀ ɍ Àɳ ǦǪǟÀǪ ÀʈǪÊǩ ɄøǪöä ɹʐŸöä ǦǂŸÀǫÀŌöä ǦÀÀȚÀöä ǦÛŌǫ ƂÜ VS (ȯ/ȯʐɳ 0.5) ğÀǫʐäÀȮöä

ǧÀʈ ÛȳäÀ8öÀä ǼǿǢŌɳ Û4000 øä ɹàʐöä ǦÀʒÀȒɳ ɄÛèʐöä ɄÀÀÂƨä ɹàʐöä ǢÊĦʋɫ .ǦöÀÎɳ ǦŎÀÛä ǢȽÀÎöä ǨǂĤǩ

ȸɳ ƂÀʅä ȳʐÀǻʐÔöä ǢǂÊõʂǿǢȽ ȯʐŸɨ ÛÀǪö ɄŸǂʈÀä ǼǿǢŌɳ ÛʅDzΣä Ǩä ȧÀÀöä Ǧʈǂę ²Ÿ ʒ ǦDzǂǪÀöä ʅÊŌǩʂ ǿÀǦǪǹɍä

ɄÛèʐöä ɄÀÀÂƨä ɹàʐöä ɹʐȮÀ .ǢȽÀÎöä ǨǂĤǩ ŌDzɈʂ ǿÀǦǪǹɍä ǧÀɳ ŌDzɈ ȬŸȚǪÊǩä VS (ȯ/ȯʐɳ 0.5) ğÀǫʐäÀȮöä

.420ʂ 380 Ǩä

.ȯ/ŋŸõ 1.140-1.110 .(Q_{20}) *Mass density ǦǂŸǪȮöä ǦʐÀǯȮöä*

Congealing point 4 8 °C 0.4 °C

pH value 4.5 7.5 50

acidity or alkalinity 5.0 50 0.01 TS VS 0.01 VS 2.0

sulfated ash 10

heavy metals 4 1 TS 70~ 25 50

limit of monoethylene and diethylene glycols 50 75 (1-2 250-100 250 R 100 1 25 25.0 R 50 10 15 525 5-2 TS 10 TS 15 blank 400 TS 10 400 TS 15 30 525 5-2

Magnesium oxide R MgO.

TS 750~

Magnesium sulfate R $MgSO_4,7H_2O$ (SRIP 1963 111).

.(112 ǦHuȦÔǟ Û1963 ÛSRIP) MnO_2 **.Manganese dioxide R** ÂƐȦƁȦţǟ ǼƐÊõǖ ɄǝȦȸ

،Manganese/silver paper R ǦȒȦǟ ÂƐȦ8Ȧţǟ ȧøȘ

15) ÂƐȦ8Ȧţǟ ğȦȦŸè ȯzŸŢȘ VS (ȯ/ȯzŋ 0.1) ǦȒȦǟ ğǟȦǫ ȯzŸŢ ȸŋ ȴDzΣǟ ɃȘȦÊǫŋ ǰȦȦŋ ƂǗ ȣȦȒƚ .*ǒǟȦDzɋǟ* ÛǦzƎǫÊŋ ǦǝȦèɓ ǯȦǫǖ ȴǫȦ ʔøǫǵ VS (ȯ/ȯzŋ 0.1) ÿzȦǻzÔǟ ƎƐÊõȘøƎƐȽ ȯzŸŢ ȸŋ ǥȦÛę ƎȞǝ ǥȦÛę TS (ȯ/ȟ ȤȦDzƚ ÛȯzŸǂǟ Ž ǦÕƐęǻ 15 ǥƎŋ (ȦǦèȦȦŋ 1 ȴęø Whatman ȷȦǫǟȘ ȧøȘ ɆȞȽ) ǴƐìȦǫǟ ȧøȘ ÙǝȦì ȝÕȦƚ .Ǵ ìȦƚȘ ǦȒȦǟ/ÂƐȦ8Ȧţǟ ȧøȘ ȷzÒȦ ȷǗ Ǽƶ .ǴȦzŸÕǟ Șǖ ǴƐȒȶΣǟ ǥȦNɉǟ ȸŋȘ ǒzȒǟ ȸŋ ȸÔɄƚȘ ÛǦÛƐǂǟ ǥøǟȦΣǟ ǦDzøǻ Ž

.ȷzŸǟ ƇƎȝ R

ǦǟȦȦę ţȦȦǩøǟ) Ōŋ 40 ǦǟȦȦę ǦȞÊǝ (ǯøƎŋ ȃȦƐŌŋ) ǦǫǟzÛèǟ Ž ȝȑzƚ .*test for sensitivity* *ȄÊȞǫǟ ŌDzɉ øȦǫȁǟ*

.TS (NH4 Ōŋ/ÿǟȦȡȘȦÒŋ 10) ÿzƐǫzŋɉǟ ƎȦøzŸõ ȯzŸŢ ȸŋ Ōŋ 1.0 (ȴŸŋ 30 ǦǟȦȦę ɄŸǹǟƎǟ ȦÛŌǟ ÛȴŸŋ 80 ƙŸƐǯȦǖ ƂzǦǟ ȸŋ ǥǻǟƎè ȯȦȶȞǫèȦǝ ǥȦìȦǦŋ ǦŸDzzΣǟ ƎÊƚ .R ÿzȦȦ8ţǟ ƎƐÊõǖ ȸŋ ȟ 1Ș ǒȦţǟ ȸŋ Ōŋ 9 ȣȦȒƚ ǦõȦɯ ǴǦÔǩ ɍ ÿzȦȦ8ţǟ ğȦȶƐÊDz ȷǖ ǬƐɯ ǦƐǫøȘǻ ǦõȦǵ øØɯ ȯzŸǂǟ õȦȝ .R ǦȒȦǟ/ÂƐȦ8Ȧţǟ ȧøȘ ȦȚŸȦèǖ ȝȑȘ ʔŸȝ Ǵȑǟ Ș ɃǻȦŋø ȷzǒ ǰǫȦƚ .ǦȝȦè 1 ǥƎŋ °ÿ 60-50 ǥøǟȦǵ ǦDzøǻ Ž ǦǫǟzÛèɍǟ ȘȦȞƚ .ȤìȦÒǟ ȧøȘ ȝŋ ȃȦǫ

.ȤìȦÒǟ ȧøȘ

.$MnSO_4,H_2O$ **،Manganese sulfate R** ÂƐȦ8Ȧţǟ ğȦȦŸè

.ȦȽÂǫǟ ǦȞƐȞì ÛƎǵȦì ȦƥǗ ȷzŸǟ ğǟøzǟ .*Ȥǒzǟ*

750~) ȯzǫȦǯȦɋǟ ȯzŸŢ Ž ȦƐŸȶȝ ǦǟȘǻ Ƙȡ ÜƂȦ8ǟ ǒȦţǟ ȸŋ ǒȦDz 0.6Ș ǒȦţǟ ȸŋ ȦǒȦDz 1 ǦǟȦȦę Ž ǦǟȘǻ .*ǦǫȦǻȘØǟ*

.TS (ȯ/ȟ

،TS ȯ ȟ 15 Manganese sulfate ÂƐȦ8Ȧţǟ ğȦȦŸè ȯzŸŢ

.$MnSO_4$ ȸŋ ȯ/ȟ 15.0 ʔŸȝ ɃzǫȞƐǒ ǒȦţǟ Ž ǦǟØŋ ÛR ÂƐȦ8Ȧŋ ğȦȦŸè

$C_2H_4O_2S$ **، Thioglycolic acid R** ŌƐǒzÒƐŸȡzƐǯǟ ȄƥȦ **Mercaptoacetic acid R** ŌƐǫƐèǖzǫǟȦõȦȼǟ ȄƥȦ

.(206 ǦHuȦÔǟ Û1963 ÛSRIP)

.(112 ǦHuȦÔǟ Û1963 ÛSRIP) $C_4H_6HgO_4$ **،Mercuric acetate R** ȨǦǝÂǟ ğȦǫƐèǖ

،Mercuric acetate/acetic acid TS ŌƐǫƐèɉǟ ȄƥȦ ȨǦǝÂǟ ğȦǫƐèǖ ȯzŸŢ

ȸŋ ¢ǟƎȞǫèǟ ŹɃØǟ ÛR1 ɄDzŸǯǟ ŌƐǫƐèɉǟ ȄƥȦ ȸŋ ȣȦõ øǟƎŌŋ Ž R ȨǦǝÂǟ ğȦǫƐèǖ ȸŋ ȟ 50 ȁǟØǻ .*ǒǟȦDzɋǟ* ŌȦøzŸõƘǟ ȄƥȦ ȯzŸȞȶȩ TS ŌƐǫƐèɉǟ ȄƥȦ/ǥøzŸǫȶţǟ ǦƐDzÊȦȦǦǟ ȯzŸŢ ʔŸȝ ÛȦøȘȦȑ Ōǟǽ ȷȦõ ǟǽǖ ÛŌǦę

.Ōŋ 1000 ǯȦǫɋ ÛVS (ȯ/ȯzŋ 0.1)

.(113 ǦHuȦÔǟ Û1963 ÛSRIP) $HgBr_2$ **.Mercuric bromide R** ȨǦǝȦǟ ƎƐŋȘȦǟ

Mercuric bromide AsTS [illegible]

.[illegible]100 [illegible] TS ([illegible] 750~) [illegible] R [illegible] 5 [illegible]

Mercuric bromide AsR [illegible]

[illegible] 120-65 [illegible] 400 [illegible] AsTS [illegible] 25 [illegible]

[illegible] AsR [illegible]

[illegible]

$Hg(NO_3)_2,H_2O$ **Mercuric nitrate R** [illegible]

[illegible] R [illegible]

deliquescent [illegible]

TS ([illegible] 1000~) [illegible]

VS [illegible] **0.01 Mercuric nitrate** [illegible]

[illegible] 3.5 [illegible] R [illegible] 5 [illegible]

[illegible] 1000 [illegible] 500 TS ([illegible] 1000~)

standardization [illegible] 0.01 [illegible]

[illegible] 20.0 [illegible] 2 [illegible] TS ([illegible] 1000~) [illegible] 2 [illegible]

[illegible] 20 [illegible] TS ([illegible] 45) [illegible]

[illegible] VS ([illegible] 0.01) [illegible]

(114 [illegible] 1963 SRIP) HgO **Mercuric oxide, yellow, R** [illegible]

Mercuric sulfate TS [illegible]

[illegible] 20 [illegible] 40 [illegible] R [illegible] 5 [illegible]

[illegible] 40 [illegible] TS ([illegible] 1760~) [illegible]

1.0 [illegible] R [illegible] **Methanol, dehydrated, R** [illegible]

[illegible]

[illegible] **Methanol R**، CH_3OH (SRIP 1963 [illegible] 117).

[illegible] **Methenamine R**، [illegible] Hexamethylenetetramine [illegible] $C_6H_{12}N_4$. [illegible]

[illegible] %99.0 [illegible] $C_6H_{12}N_4$.

[illegible]

[illegible] (~750 [illegible]) TS.

[illegible] 2.5 [illegible] 25 [illegible] 10 [illegible] 3 [illegible] TS [illegible] 1 [illegible] (0.1 [illegible]) VS. [illegible] 10 [illegible] 3 [illegible] TS [illegible]

[illegible] (0.1 [illegible]) VS.

[illegible] *sulfated ash* [illegible] 0.5 [illegible].

[illegible] 1.5 [illegible] 10 [illegible] 50 [illegible] (0.5 [illegible]) VS [illegible] (1 [illegible]) VS [illegible] TS [illegible] 1 [illegible]

[illegible] (0.5 [illegible]) VS [illegible] 35.05 [illegible] $C_6H_{12}N_4$.

[illegible] **Methyl orange R**، [illegible] 4′-dimethylaminoazobenzene-4-sufonic acid.

$C_{14}H_{14}N_3NaO_3S$ (SRIP 1963 [illegible] 117).

[illegible] **Methyl orange/ethanol TS**،

[illegible] 0.04 [illegible] R [illegible] (~750 [illegible]) TS [illegible]

1000 [illegible].

[illegible] **Methyl red R**، 4′-Dimethylaminobenzene-2-carboxylic acid [illegible] $C_{15}H_{15}N_3O_2$ (SRIP 1963 [illegible]

118 [illegible]).

[illegible] **Methyl red/ethanol TS**،

[illegible] 25 [illegible] R [illegible] 0.95 [illegible] (0.05 [illegible]) [illegible]

VS 5 [illegible] (~750 [illegible]) TS [illegible]

[illegible] (~375 [illegible]) TS [illegible] 250 [illegible].

Methyl red/methylthionium chloride TS [illegible]

[illegible] 0.4 [illegible] TS ([illegible] 750~) [illegible] 0.5 [illegible] R [illegible] 20 [illegible]
[illegible] 20 [illegible] R [illegible]

$C_{16}H_{18}ClN_3S,3H_2O$. methylene blue [illegible] **Methylthionium chloride R** [illegible]
(119 [illegible] 1963 SRIP).

TS [illegible] 0.2 Methylthionium chloride [illegible]
[illegible] 100 [illegible] R [illegible] 23 [illegible]

C.I. [illegible] 11 [illegible] C.I. . Eriochrome black R [illegible] **Mordant Black 11 R** [illegible]
2-(2-hydroxy-6- [illegible] Solochrome Black [illegible] T [illegible] 14645 [illegible]
(84 [illegible] 1963 SRIP) $C_{20}H_{12}N_3NaO_7S$ nitro-4-sulfo-1-naphthylazo)-1-naphtol

Mordant Black 11 indicator mixture R [illegible]
R [illegible] 100 [illegible] R 11 [illegible] 1 [illegible]

(122 [illegible] 1963 SRIP) .$C_{10}H_8O$. ß-naphthol R [illegible] **2-Naphthol R** [illegible]–2

2-Naphthol TS1 [illegible]–2 [illegible]
([illegible] 80~) [illegible] 40 [illegible] R [illegible]–2 [illegible] 5 [illegible]
[illegible] 100 [illegible] TS
[illegible] TS1 [illegible]–2 [illegible]

[illegible] 1963 SRIP) . R ([illegible] 70) [illegible] **TS [illegible] 1000~ Nitric acid** [illegible]
d~1.14 (125

TS [illegible] 130~ Nitric acid [illegible]
[illegible] 1000 [illegible] TS([illegible] 1000~) [illegible] 130 [illegible]
d~1.07 ([illegible] 2 [illegible]

TS [illegible] 15~ Nitric acid [illegible]
HNO_3 [illegible] 15.0 [illegible] TS([illegible] 1000~) [illegible]

TS [illegible] 3~ Nitric acid [illegible]
HNO_3 [illegible] 3.0 [illegible] TS([illegible] 1000~) [illegible]

(128 [illegible] 1963 SRIP) $C_6H_5NO_2$ **Nitrobenzene R** [illegible]

.(129 [illegible] 1963 [illegible]SRIP) N_2 .R [illegible]

(132 [illegible] 1963 [illegible]SRIP) .**Pancreatic digest of casein R** [illegible]

.(135 [illegible] 1963 [illegible]SRIP) .**Papaic digest of soybean meal R** [illegible]

.(135 [illegible] 1963 [illegible]SRIP) .**Paraffin, liquid, R** [illegible]

[illegible] enzyme [illegible] .**Penicillinase R** [illegible] *Bacillus cereus* [illegible] thiazolidine [illegible] (ò/ȟ 750~) [illegible] .ethyl acetate R [illegible] R [illegible] ."Preparation of penicillinase [illegible]" [illegible]

[illegible]

[illegible] 2.7 [illegible] 10 [illegible] .*Preparation of penicillinase* [illegible] 200 [illegible] R [illegible] 5.9 [illegible] R [illegible] 0.4 [illegible] 1000 [illegible] TS (ò/ȟ 200~) [illegible] 7.2 [illegible] TS (ò/ȟ 1) [illegible] 1 [illegible] 5 [illegible] R [illegible] 10 [illegible] NCTC 9946 *Bacillus cereus* [illegible] 37-35 [illegible] 37-18 [illegible] 16 [illegible]

.R [illegible] .**Penicillinase TS** [illegible]

[illegible] ."Penicillinase assay [illegible]" [illegible] TS [illegible] 36 [illegible]

[illegible] .*Penicillinase assay* [illegible] .°[illegible]1 ± 30 [illegible] 20 [illegible] 15 [illegible] borosilicate glass

.ȯǺƪȞǬȅɍǟ ǬǤ ◦ÿ 30 ǥøǟÀШ Ⱬ ȉǟⱬȮǟ ȜǢƤ ȷⱬȮǩ ȷǕ

ȸȠ Ǭȵ 0.4 Ûgelatin TS ÿŸŢǟ ȯⱬŸȚ ȸȠ Ǭȵ 1.6 :ƃǺǬǟ ǼȄǨǬǟ Ȩⱬȿ øǺǬȵɍǟ ǟⱬǤǕ ƃǕ Ⱬ ȉǟⱬȮǟ ȣǺȒǨ

ÛTS ƙŸÊǟ ǬǺǺǟ ÿⱬǻⱬȍ ȯⱬŸȚ ȸȠ Ǭȵ 1ȿ ÛTS ǺÎǺǟ ȯⱬŸȚ ȸȠ ǥÀÛȩ 1 ÛȻøǺǬȵǟ ǻǟǺȶǟ TS ȁǺǼŸÊǺǟ ȯⱬŸȚ

ǻⱬǟ ȯⱬŸȚ ȸȠ Ǭȵ 2.0 ȣǺȒǨ ǤǢǺǬ 15 ǼȞȿ ǤǬȩǘȶǟ ǤȝǺÊǟ ȨŸÛǨ .Ǭȵ 1 ȽǷШ ȌǾư ȸȠ ƘȵȷǨ Ⱬ ȉǺȮǟ ÑǺǺ

.TS ƙŸÊǟ ǬǺǺǟ ÿⱬǻⱬȍ ȯⱬŸȚ ǤⱬǺȑǕ ȸȠȁ ȸȠ ǺøǺǬȝǟ ǻⱬǟ ȷⱬǻ ȶÂǬ ȸȠȁ ǬȡÊǨ ÛVS (ȯ/ȯⱬȵ 0.01)

ȓǺÎǬ Ȝȵ ȕǤȒǺǟ ǤǢǺǬ 36 ȯŸȵ ȷⱬŸǟ ȶÂǬ ȸȠȁ Ȩⱬǟⱬǟ .ǤÊǺǾȶǟ ǰǟǬǬ ȸȠ TS ȁǺǼŸÊǺǟ ȯⱬŸȚ ȓǺÎǬ ǼÊȞǨ

ǤȝǺÊǟ Ž R ƙŸÊǟ ǬǺǺǟ ÿⱬǻⱬȍ ȸȠ ȠŸȵ 220 (7.0 ȭǺȽǺǟ Ž ◦ÿ 30 ǤǷøǼǟǺǟ) ȬȮǺǩ ȯǼȞȶ ȕⱬǺȮȶǟ ȁǺǼŸÊǺǟ

.TS ȁǺǼŸÊǺǟ ȯⱬŸȚ ȸȠ Ǭȵ 1 ǬȮǬ

Ž ȘǺȞǨȿ ǼȽǷǬǟ ǤǺǥ Ž ⱬȽȿ ⱬǺǷǨ ǺȵǼǺȝ .ÿǺǕ 3-2 ȯŸȵ ǬȽȞǬÊǨȿ ◦ÿ 2ȿ 0 ƙǟ ǤǷøǼǺǟ ȷǺǺǨ .*ȸǺǺǺǟ*

.ǺȚȉǕ ǥǼȞ ȁǺǼŸÊǺǟ ȯⱬŸȚ ȷǺǺǨ ȷǕ ȸȮȽǢⱬ ÛǤȵⱬǬư ǧȓⱬǤȵǕ

.(137 ǤȞǺȎǟ Û1963 ÛSRIP) **،Peptone, dried, R** ⱬǺǷȶǟ ÛȷⱬǬǤǟ

0.02 ȝŸȜ ɃⱬǬǂǟȿ ǥǼȍⱬȶǺǟ ȽǬȞȶǟ ȯⱬŸǂǟ ȷⱬȮǺ :ƃǺǬǟ ǼŸÛǬȶǟ ȖøǤǨ R ⱬǺǷȵ ȷⱬǬǟ **.Peptone R1** ȷⱬǬǤǟ

.ǺǤȁȬǩ ȉǟǺȞǬȵ ȿǕ ȉǟǺȞǬȵȿ ǺⱬǺȍ Ǭȵ/ȟ

،TS ȯ ȟ 5 Peptone ȷⱬǬǤǟ ȯⱬŸȚ

ⱬǺȻȿ R ÿⱬǻⱬÔǟ ǼǺøⱬŸȭ ȸȠ ȟ 7ȿ ÛƙǺÊǬǟ Ȝȵ ÛȯǺȶǟ Ž R ⱬǺǷȶǟ ȷⱬǬǟ ȸȠ ȟ 5.0 ǟǺØǨ .*ǼǟǷǷǟ*

ȝøǬǥ ȯǼȞǨ ÛǤȉǺǨ .ǤǬȩǻ 20 ǥǼȵ ȝŸȣȿ 8.4 - 8.0 ȭǺȽǺǟ ȝøǬǥ ȯǼȞǨ .Ǭȵ 1000 ǯǺǬȹ ȭǺȶǟ ȸȠ ȢȣǺȭ øǟǼǬȵ

.ǤǬȩǻ 30 ǥǼȵ ◦ÿ 115 ǤǷøǼǺǟ ȼȚǺШ ȽǬȞȿ Û7.4 - 7.2 ȭǺȽǺǟ

،TS1 ȯ ȟ 1 Peptone ȷⱬǬǤǟ ȯⱬŸȚ

ȭǺȶǟ ȸȠ ȢȣǺȭ øǟǼǬȵ Ž (ȖøǬⱬǥ ȷǬÊǬ ƙÊǤǟ ǤȵǺȒȽ ȼǟÎǨ Ǻȵ ȿǕ) R1 ȷⱬǬǤǟ ȸȠ ȟ 1.0 ǟǺØǨ .*ǼǟǷǷǟ*

ǤȜȿǕ Ž ÿǺÊȩǕ ȝŸȜ Ǭȵ 100 ȜȑⱬǨ Û0.2 ± 7.1 ȭǺȽǺǟ ƃǕ ȯǼȞǨ ÛǨⱬǺȍ ǤǤÔǟ ØǤǺ ȿǕ ǤȉǺǨ ÛǬȵ 1000 ǯǺǬȹ

.ǤǬȩǻ 20 - 18 ǥǼȵ ◦ÿ 121 ǤǷøǼǺǟ ȘǺΣǺǟ ȽǬȞȿ ÛǤǻǺⱬ

،TS2 ȯ ȟ 1 Peptone ȷⱬǬǤǟ ȯⱬŸȚ

øǟǼǬȵ ⱬǺȻȿ R ÿⱬǻⱬÔǟ ǼǺøⱬŸȭ ȸȠ ȟ 9ȿ ÛƙǺÊǬǟ Ȝȵ ÛȯǺȶǟ Ž R ȣǺȥǟ ȷⱬǬǟ ȸȠ ȟ 1.0 ǟǺØǨ .*ǼǟǷǷǟ*

ȭǺȽǺǟ ƃǕ ȯǼȞǨ ÛǤȉǺǨ .ǤǬȩǻ 20 ǥǼȵ ȝŸȣȿ 8.4 - 8.0 ȭǺȽǺǟ ȝøǬǥ ȯǼȞǨ .Ǭȵ 1000 ǯǺǬȹ ȭǺȶøǟ ȸȠ ȢȣǺȭ

.ǤǬȩǻ 30 ǥǼȵ ◦ÿ 115 ǤǷøǼǺǟ ȘǺΣǺǟ ȽǬȞȿ Û7.4 - 7.2

. R(ȷȁȿ/ȷȁȿ ǤǺȶǟ Ž 70) ȬǺøⱬŸȭƘǟ Ȍþ **،TS ȯ ȟ 1170~ Perchloric acid** ȬǺøⱬŸȭƘǟ Ȍþ ȯⱬŸȚ

.*d*~1.67 Û(137 ǤȞǺȎǟ Û1963 ÛSRIP)

ÛTS (ȯ/ȟ 1170~) ȬǺøźŸȭƘǦä Ȑƥ ȯźŸȚ ،**TS ȯ ȟ 140~ Perchloric acid** ȬǺøźŸȭƘǦä Ȑƥ ȯźŸȚ

.*d*~1.09 Û$HClO_4$ ȡȵ ȯ/ȟ 141 ɁŸȝ ɃźǪɄƗö ŏȦţǞ ȀȦȧȺȦȹ

،**VS ȯ ȯźȵ 0.1 Perchloric acid** ȬǺøźŸȭƘǦä Ȑƥ ȯźŸȚ

ȡȵ Ȭȵ 8.2 øäǼȬȵ Û°ȳ 25 ǦääȦȩ gøäȦǵ ǦDZøá Ž ÛR1 ɄDzŸǯä ȬǪƗèɉä Ȑƥ ȡȵ Ȭȵ 900 ƂÜ ȣȦȒł .*ǒäȦDZqá* acetic anhydride ȬǪƗèɉä ǼǺøǼƗŒÜ ȡȵ Ȭȵ 32 ȣȦȒłş ÛȝȦŧł ÛTS (ȯ/ȟ 1170~) ȬǺøźŸȭƘǦä Ȑƥ ȯźŸȚ ȝȦǪq ÛR1 ɄDzŸǯä ȬǪƗèɉä Ȑƥ ȡȵ ȩȣȦȭ øäǼȬȵ ȣȦȒł ÛǦźȦȣöä gøäȦǵ ǦDZøá ƂÜ ǻȜł .ǦƗǪȦǭ ȝȦŧłş ÛR .ǦȝȦè 24 gǼȵ øäȦȬǪèŸö ȭȦǪş ÛȬȵ 1000

ǼǺøǼƗŒÜ şÜ ǒȦţä ȡȵ ȣȦȭ øäǼȬȵ ȣȦȒł .ȀȦøşȦȑ Ȭöǽ ɉȦȭ äǽÜ .ȦȊƗź ȯøȦȭ ǦȬǺȦÛǽ ɁźǪɉä ȡǪȞł .*water ǒȦţá* .ǦƗźȦȑÜ ǦȝȦè 24 gǼȵ øäȦȬǪèŸö ȭȦǪş ÛȬȵ/ȠŸȵ 0.2ş 0.1 Ƙǽ ǒȦţä ȡȵ ɁźǪɉä ȔǦȒö R ȬǪƗèɉä

ǧɍȦǯź ȡȵ ÛǦƗüźǦȒȠ ǦǪşäźȵ Ûȟ 0.5 gȦȦȞŧȇ ƐƗęǼöä ȂƗȭȦǪöä ȡȵ ƐȬɄǪöä ȴǪǺ .*standardization ȄƗǪȬǪöä ǦȬǺȦü* ÛǦȝȦè 2 gǼȵ °ȳ 120 ǦDZøǼöȦǽ ȀȬǦȄȵ ǦȦȦDZţä Û*potassium hydrogen phthalate* R ȳźƗèȦǩźǦöäş ƘDZşøǼƗȚä Û"*Non-aqueous titration ɄǝȦȵŸöä Üèźöá Ž gȦȦȞŧá*" ɉäźȦȝ ȞƠ ȣźȯźȵ źȴ ȦŧȭÛA ǦȬȦÛöä ȳäǼȦǪèȦǽ ȡȵ ȠŸȵ 20.42 üźȦȮł VS (ȯ/ȯźȵ 0.1) ȬǺøźŸȭƘǦä Ȑƥ ȯźŸȚ ȡȵ Ȭȵ 1 ȬȬ .127 ǦɄȦȎöä ȦȚǪä .ȦȊƗź ȄƗǪȬǪöä ǒäȦDZÜ Ź ɄøǪöä gøäȦΣä ǦDZøá ȬDzȆȉ .$C_8H_5KO_4$

.(108 ǦɄȦȎöä Û1963 ÛSRIP) . light petroleum R ȤƗȦǹ ȯşȦǪǽ **Petroleum, light, R** ȤƗȦȈä ÛȯşȦǪǦöä

.(138ǦɄȦȎöä Û1963 ÛSRIP) $C_{12}H_8N_2$, H_2O Û1,10-Phenanthroline ،***o*-Phenanthroline R** ƘȯşȦȝǪȦȊź źǪøşÜ

،**TS ȯ ȟ 1** ***o*-Phenanthroline** ƘȯşȦȝǪȦȊź źǪøşÜ ȯźŸȚ

.Ȭȵ 100 ȝȦǪq ǒȦţä ȡȵ ȩȣȦȭ øäǼȬȵ Ž R ƘȯşȦȝǪȦȊź źǪøşÜ ȡȵ ȟ 0.11 ȁäØł ،*ǒäȦDZqá*

،***o*-Phenanthroline TS** ƘȯşȦȝǪȦȊź źǪøşÜ ȯźŸȚ

ȡȵ ȟ 1.5 ǦääȦȩ ȣȦȒł ÛǒȦţä ȡȵ Ȭȵ 70 ǦääȦȩ Ž ferrous sulfate R ȁşǼǺǼΣä ǧȦŸè ȡȵ ȟ 0.7 ȁäØł ،*ǒäȦDZqá* .Ȭȵ 100 ȝȦǪq ǒȦţä ȡȵ ȩȣȦȭ øäǼȬşȵ R ƘȯşȦȝǪȦȊź źǪøşÜ

،C_6H_6O ،**Phenol R** ȯźǼȦöä

ÛǦɄəäȦöä ÛȀǦǺȦȬǩ ȤƗȦǹ ɄŸȦǪȦȩ ɉźŸǽ şÜ ÛɉźŸöä ǦźǼȝ ÛǦȮèȦŧǪȵ şÜ ǦŸȎȦȦȵ ǦǺȦȁä ǧäøźȦǽ şÜ ǦǺøźŸǽ ȬǪȭ .*Ȥöźöä* .ǦƗüȦȺţä ǦƗȊǳɉäş ǼŸɀä ȁźɄȉ ǼǦȆł ÛǦöȦȭǪ .gȦƗŧȵ

ȯźŸȚ Ž ɉȦǽşǾöä gȦǵ ÛR ȬəȦȄöä ƘźäȦȢöä ȡȵ ǒȦDZ 100 ǦääȦȩ Žş ǒȦţä ȡȵ ȀȦDZ 15 ǦääȦȩ Ž Ǧäşǽǹ .*ǦǪȦǽşǾöä* .R ȳøźźşøźŸǝöäş R Ƙǫɉäş TS (ȯ/ȟ 750~) ȯźǪȦȝǺqä

.°ȳ 15 gøäȦǵ ǦDZøá Ž ǒȦţä ȡȵ Ȭȵ 15 Ž ȀŸȵȦȭ ȟ 1.0 ȁşØǺ .*Completenss of solution ȯźŸɉá ǦȦȬȦŧȬ*

.°ÿ 40.5 ȸ Ŏǒ ɍ .*congealing temperature* *ǻɫŐɼ ǥǿǕǥ ǄǱǿǻ*

ǄǱǿǻ Ž ǨǼǯ ȷǟ ʔǿǥ ǡǂƽ Ʉǩ ÿþ ʔʒ ǞǺ .*residue on evaporation* *ǨǺǪ ȸ ǆǩǯ*

.ǆǩɫǯ ȸ ȟ/ƞ 0.5 ȸ ǼǍ ǩ ǒǪ ɍ Ü°ÿ 105 ǥǿǕǥ

.(139 ǦǶǑǑ Û1963 ÛSRIP) $C_{20}H_{14}O_4$.**Phenolphthalein R** ƙǑǯ ȯǕǑ

،**Phenolphthalein/ethanol TS** ȯǀǯq ƙǑǯ ȯǕǑ ȯǛ

.Ǒ100 ǯǪq TS (ȯ/ȟ750~) ȯǀǯq ȯǛ ȸ ȣ Ǒ ǿǼǑ Ž R ƙǑǯ ȯǕǑ ȸ ȟ 1.0 ǡǿǾ .*ǿǕǄq*

،**Phenolphthalein/pyridine TS** ȸǼǨǦ ƙǑǯ ȯǕǑ ȯǛ

.Ǒ 100 ǯǪq R ȸǼǨǦ ȯǛ ȸ ȣ Ǒ ǿǼǑ Ž R ƙǑǯ ȯǕǑ ȸ ȟ 1.0 ǡǿǾ .*ǿǕǄq*

Û1963 ÛSRIP) $C_{19}H_{14}O_5S$ ÛPhenolsulfonphthalein ƙǑǯ ȷǕǛ ȯǕ ،**Phenol red R** ȯǕǑ ǥɫǥ

.(139 ǦǶǑǑ

،**Phenol red/ethanol TS** ȯǀǯq ȯǕǑ ǥɫǥ ȯǛ

0.05) ÿǻǑ ǼÊŏşǿǼ ȯǛ ȸ Ǒ 2.85 ȸ ǰǑ Ž R ȯǕǑ ǥɫǥ ȸ ȟ 0.05 ǡǿǾ .*ǿǕǄq*

ǿǼǑ ǤǺ ǼǮ ǼǶ ǤÛ ȯǛ ȸǺ .TS (ȯ/ȟ 750~) ȯǀǯq ȯǛ ȸ Ǒ 5ş VS (ȯ/ȯ

.Ǒ 250 ǯǪq TS (ȯ/ȟ 150~) ȯǀǯq ȯǛ ȸ ȣ Ǒ

،**(Phosphate buffer, sterile, pH 4.5, TS) TS** Û**4.5** ǒǼ ÛȴǑ Ûǧ ǼǑ ǦǿǼ ȯǛ

Ž potassium dihydrogen phosphate R ÿǻèǩ ƙǄşǿǼ Ǧǩ ǧǼ ȸ ȟ 13.6 ǡǿǾ .*ǿǕǄq*

ȷǑ ǿÜ Ü°ÿ 120 ǥǿǕǥ ǄǱǿǻ Ž ǥǼǻ Ž ǄǑǻ 20 ǥǼ ȯǛ ȴǑ .Ǒ 1000 ǯǪq ǒǻ ȸ ȣ Ǒ ǿǼǑ

ȯǛ şÜ TS (ȯ/ȟ 1440~) ŎǿǑǼ ȒþȯǶ 4.55 - 4.45 ƂÜ ǒǼǑ ȯǼ ÛǿşȒ Ŏǿ

.TS (ȯ/ȟ 110~) ÿǻèǩǑ ǼÊŏşǿǼ

.ȯǛ ȴǑ ǑǄ ÛǿşȒ Ŏǿ ȷǑ ǿÜ ÛpH ǒǼǑ ǑǼ ǍǄ ȷÜ Ǽz .*ǦŢǥƳ*

،**(Phosphate buffer, sterile, pH 6.0, TS1) TS1** Û**6.0** ǒǼ ÛȴǑ Ûǧ ǼǑ ǦǿǼ ȯǛ

ȟ8.0ş dipotassium hydrogen phosphate R ÿǻèǩ Ǧǩ ƙǄşǿǼ ǧǼ ȸ ȟ2.0 ǡǿǾ .*ǿǕǄq*

ǯǪq ǒȶ ȸ ȣ Ǒ ǿǼǑ Ž potassium dihydrogen phosphate R ÿǻèǩ ƙǄşǿǼ Ǧǩ ǧǼ ȸ

ǒǼǑ ȯǼ ÛǿşȒ Ŏǿ ȷǑ ǿÜ Ü°ÿ 120 ǥǿǕǥ ǄǱǿǻ Ž ǥǼǻ Ž ǄǑǻ 20 ǥǼ ȯǛ ȴǑ .Ǒ 1000

(ȯ/ȟ110~) ÿǻèǩǑ ǼÊŏşǿǼ ȯǛ şÜ TS (ȯ/ȟ 1440~) ŎǿǑǼ Ȓþ ȯǶ 6.05 - 5.95 ƂÜ

.TS

.ȯǛ ȴǑ ǑǄ ÛǿşȒ Ŏǿ ȷǑ ǿÜ ÛpH ǒǼǑ ǑǼ ǍǄ ȷÜ Ǽz .*ǦŢǥƳ*

،(Phosphate buffer, sterile, pH 6.0, TS2) TS2 Û6.0 ǒĿǎ ÛƗȫĤöä Ûğ ȦÊĀöä Ǧəøäấ ȯ ʒŸŢ

anhydrous disodium hydrogen ǦƗəĀŋŸöä ÿʒấʒÔöä ǦƗəĀǺ ƙDZşøÆƗTä ğȦÊǶ ȸŋ ȟ 1.16 ā äØł .ǒäÄDZqǻ

Ž potassium dihydrogen phosphate R ÿʒƗèĀkʒǦöäş ƙDZşøÆƗTä ǦƗəĀǺ ğȦÊǶ ȸŋ ȟ 7.96ş phosphate R

ɹȦõ äæÛ Û°ÿ 120 ğøäȀǵ ǦDZøå Ž ğÆȸʒţä Ž ǦȪƗęấ 20 ğÆŋ ȯʒŸǂä ȴȫĤł .Ȫŋ 1000 ʓĀ ǫ ǒȦţä ȸŋ ǽȣ Ȧõ øäÆȫŋ

ȯʒŸŢ şÜ TS (ȯ/ȟ 1440~) ȪǺøʒȦÊĀöä Ȑƥ ȯʒŸĤʇȇ 6.05 - 5.95 ƂÜ ǒĿǦöä ȯÆĤł ÛǺøşȀȑ Ȫöæ

.TS (ȯ/ȟ 110~) ÿʒƗèĀkʒǦöä ÆƗÊõşøÆƗĿ

.ȯʒŸǂä ȴȫĤǩ ȪǦę ÛǺøşȀȑ Ȫöæ ɹȦõ äæÛ ÛpH ǒĿǦöä ȪǺÆĤǩ ÂDZĀł ɹÜ Æƶ .ǦŢǵŸŋ

،(Phosphate buffer, sterile, pH 6.0, TS3) TS3 Û6.0 ǒĿǎ ÛƗȫĤöä Ûğ ȦÊĀöä Ǧəøäấ ȯ ʒŸŢ

ȟ8.0ş dipotassium hydrogen phosphate R ÿʒƗèĀkʒǦöä ǦƗəĀǺ ƙDZşøÆƗTä ğȦÊǶ ȸŋ ȟ 20.0 ā äØł .ǒäÄDZqǻ

ʓĀ ǫ ǒȦţä ȸŋ ǽȣ Ȧõ øäÆȫŋ Ž potassium dihydrogen phosphate R ÿʒƗèĀkʒǦöäş ƙDZşøÆƗTä ǦƗəĀǺ ğȦÊǶ ȸŋ

ǒĿǦöä ȯÆĤł ÛǺøşȀȑ Ȫöæ ɹȦõ äæÛ Û°ÿ 120 ğøäȀǵ ǦDZøå Ž ğÆȸʒţä Ž ǦȪƗęấ 20 ğÆŋ ȯʒŸǂä ȴȫĤł .Ȫŋ 1000

(ȯ/ȟ 110~) ÿʒƗèĀkʒǦöä ÆƗÊõşøÆƗĿ ȯʒŸŢ şÜ TS (ȯ/ȟ 1440~) ȪǺøʒȦÊĀöä Ȑƥ ȯʒŸĤʇȇ 6.05 - 5.95 ƂÜ

.TS

.ȯʒŸǂä ȴȫĤǩ ȪǦę ÛǺøşȀȑ Ȫöæ ɹȦõ äæÛ ÛpH ǒĿǦöä ȪǺÆĤǩ ÂDZĀł ɹÜ Æƶ .ǦŢǵŸŋ

،(Phosphate standard buffer, pH 6.8, TS) TS Û6.8 ǒĿǎ Ûğ ȦÊĀöä ɃøȦƗĤŋ Ǧəøäấ ȯʒŸŢ

potassium dihydrogen phosphate R ÿʒƗèĀkʒǦöäş ƙDZşøÆƗTä ǦƗəĀǺ ğȦÊǶ ȸŋ ȟ 3.40 ā äØł .ǒäÄDZqǻ

Ž anhydrous disodium hydrogen phosphate R ǦƗəĀŋŸöä ÿʒấʒÔöä ǦƗəĀǺ ƙDZşøÆƗTä ğȦÊǶ ȸŋ ȟ 3.53ş

.Ȫŋ 1000 ʓĀ ǫ ɹʒäȦȮöä ÆƗÊõĺ ɄəĀǺ ȸŋ ƂȦʅä ǒȦţä ȸŋ ǽȣ Ȧõ øäÆȫŋ

،(Phosphate buffer, pH 7.0, TS) TS Û7.0 ǒĿǎ Ûğ ȦÊĀöä Ǧəøäấ ȯʒŸŢ

anhydrous disodium hydrogen ǦƗəĀŋŸöä ÿʒấʒÔöä ǦƗəĀǺ ƙDZşøÆƗTä ğȦÊǶ ȸŋ ȟ 5.76 ā äØł .ǒäÄDZqǻ

Ž potassium dihydrogen phosphate R ÿʒƗèĀkʒǦöäş ƙDZşøÆƗTä ǦƗəĀǺ ğȦÊǶ ȸŋ ȟ 3.53ş phosphate R

.Ȫŋ 1000 ʓĀ ǫ ɹʒäȦȮöä ÆƗÊõĺ ɄəĀǺ ȸŋ ƂȦʅä ǒȦţä ȸŋ ǽȣ Ȧõ øäÆȫŋ

،(Phosphate buffer, sterile, pH 7.0, TS) TS Û7.0 ǒĿǎ ÛƗȫĤöä Ûğ ȦÊĀöä Ǧəøäấ ȯʒŸŢ

anhydrous disodium hydrogen ǦƗəĀŋŸöä ÿʒấʒÔöä ǦƗəĀǺ ƙDZşøÆƗTä ğȦÊǶ ȸŋ ȟ 5.76 ā äØł .ǒäÄDZqǻ

Ž potassium dihydrogen phosphate R ÿʒƗèĀkʒǦöäş ƙDZşøÆƗTä ǦƗəĀǺ ğȦÊǶ ȸŋ ȟ 3.55ş phosphate R

ɹȦõ äæÛ Û°ÿ 120 ğøäȀǵ ǦDZøå Ž ğÆȸʒţä Ž ǦȪƗęấ 20 ğÆŋ ȯʒŸǂä ȴȫĤł .Ȫŋ 1000 ʓĀ ǫ ǒȦţä ȸŋ ǽȣ Ȧõ øäÆȫŋ

ȯʒŸŢ şÜ TS (ȯ/ȟ 1440~) ȪǺøʒȦÊĀöä Ȑƥ ȯʒŸĤʇȇ 7.05 - 6.95 ƂÜ ǒĿǦöä ȯÆĤł ÛǺøşȀȑ Ȫöæ

.TS (ὀ/ȟ 110~) ÿζȇèǺǩζǤǿä ǼȈÊõşøǼȈȽ

.ὀζŸ+ä ḺȈÕȞǨ ÕǤę ÛǺȘøşȀȑ Õ̃ǿǽ ȷǺõ äǽǕ ÛpH ǒǺȽǺǤǿä ÕǺǼȞǨ ÂDzǺȽ ȷǕ Ǽƶ .ǴȚǵŸŋ

،(Phosphate buffer, sterile, pH 7.2, TS) TS Û7.2 ǒǺȽǺǽ ÛḺȈÕȞǿä Ûğ ǺǺÊǺǿä Ǥǝøāǻ ὀζŸȚ

ȟ1.4ş potassium dihydrogen phosphate R ÿζȇèǺǩζǤǿäş ƙDZşøǼȈTä ǤȽǝǺǺǷ ğǺǺÊȜ ȸŋ ȟ6.80 āǽǾȽ .ǒǟǞDZqǟ ǥǼȍζʈä Ž ǦÕȈęǻ 20 ǥǼŋ ὀζŸ+ä ḺȌȞȽ .Õŋ 1000 ǯǺǬφq ǒǺʈä ȸŋ ǽȣǺõ øäǼÕŋ Ž R ÿζǺǻζÔǿä ǼȈÊõşøǼȈȽ ȸŋ 1440~) Õ̃ǺøζǺÊǺǿä Ȑþ ὀζŸǶȽȇ 7.3 - 7.1 ƂǕ ǒǺȽǺǤǿä ὀǼȞȽ ÛǺȘøşȀȑ Õ̃ǿǽ ȷǺõ äǽǕ Û°ÿ120 ǥøäǺǵ ǦDZøǻ Ž .TS (ὀ/ȟ 110~) ÿζȇèǺǩζǤǿä ǼȈÊõşøǼȈȽ ὀζŸȚ şǕ TS (ὀ/ȟ

.ὀζŸ+ä ḺȈÕȞǨ ÕǤę ÛǺȘøşȀȑ Õ̃ǿǽ ȷǺõ äǽǕ ÛpH ǒǺȽǺǤǿä ÕǺǼȞǨ ÂDzǺȽ ȷǕ Ǽƶ .ǴȚǵŸŋ

،(Phosphate standard buffer, pH 7.4, TS) TS Û7.4 ǒǺȽǺǽ Ûğ ǺǺÊǺǿä ɃøǺǼȞȸ Ǥǝøāǻ ὀζŸȚ

potassium dihydrogen phosphate R ÿζȇèǺǩζǤǿäş ƙDZşøǼȈTä ǤȽǝǺǺǷ ğǺǺÊȜ ȸŋ ȟ 1.18 āǽǾȽ .ǒǟǞDZqǟ Ž anhydrous disodium hydrogen phosphate R ǤȽǝǺŋȣǿä ÿζǺǻζÔǿä ǤȽǝǺǺǷ ƙDZşøǼȈTä ğǺǺÊȜ ȸŋ ȟ 4.30ş .Õŋ 1000 ǯǺǬφq ȷζǽǺÒǿä ǼȈÊõǕ ȾǝǺǺǷ ȸŋ ƂǺʅä ǒǺʈä ȸŋ ǽȣǺõ øäǼÕŋ

،(Phosphate buffer, sterile, pH 8.0, TS1) TS1 Û8.0 ǒǺȽǺǽ ÛḺȈÕȞǿä Ûğ ǺǺÊǺǿä Ǥǝøāǻ ὀζŸȚ

dipotassium hydrogen phosphate R ÿζȇèǺǩζǤǿä ǤȽǝǺǺǷ ƙDZşøǼȈTä ğǺǺÊȜ ȸŋ ȟ 16.73 āǽǾȽ .ǒǟǞDZqǟ ȸŋ ǽȣǺõ øäǼÕŋ Ž potassium dihydrogen phosphate R ÿζȇèǺǩζǤǿäş ƙDZşøǼȈTä ǤȽǝǺǺǷ ğǺǺÊȜ ȸŋ ȟ0.52ş ÛǺȘøşȀȑ Õ̃ǿǽ ȷǺõ äǽǕ Û°ÿ120 ǥøäǺǵ ǦDZøǻ Ž ǥǼȍζʈä Ž ǦÕȈęǻ 20 ǥǼŋ ὀζŸ+ä ḺȌȞȽ .Õŋ 1000 ǯǺǬφq ǒǺʈä ÿζȇèǺǩζǤǿä ǼȈÊõşøǼȈȽ ὀζŸȚ şǕ TS (ὀ/ȟ 1440~) Õ̃ǺøζǺÊǺǿä Ȑþ ὀζŸǶȽȇ 8.1-7.9 ƂǕ ǒǺȽǺǤǿä ὀǼȞȽ .TS (ὀ/ȟ 110~)

.ὀζŸ+ä ḺȈÕȞǨ ÕǤę ÛǺȘøşȀȑ Õ̃ǿǽ ȷǺõ äǽǕ ÛpH ǒǺȽǺǤǿä ÕǺǼȞǨ ÂDzǺȽ ȷǕ Ǽƶ .ǴȚǵŸŋ

،(Phosphate buffer, sterile, pH 8.0,TS2) TS2 Û8.0 ǒǺȽǺǽ ÛḺȈÕȞǿä Ûğ ǺǺÊǺǿä Ǥǝøāǻ ὀζŸȚ

anhydrous disodium hydrogen ǤȽǝǺŋȣǿä ÿζǺǻζÔǿä ǤȽǝǺǺǷ ƙDZşøǼȈTä ğǺǺÊȜ ȸŋ ȟ8.95 āǽǾȽ .ǒǟǞDZqǟ Ž potassium dihydrogen phosphate R ÿζȇèǺǩζǤǿäş ƙDZşøǼȈTä ǤȽǝǺǺǷ ğǺǺÊȜ ȸŋ ȟ0.50ş phosphate R ȷǺõ äǽǕ Û°ÿ 120 ǥøäǺǵ ǦDZøǻ Ž ǥǼȍζʈä Ž ǦÕȈęǻ 20 ǥǼŋ ὀζŸ+ä ḺȌȞȽ .Õŋ 1000 ǯǺǬφq ǒǺʈä ȸŋ ǽȣǺõ øäǼÕŋ ǼȈÊõşøǼȈȽ ὀζŸȚ şǕ TS (ὀ/ȟ 1440~) Õ̃ǺøζǺÊǺǿä Ȑþ ὀζŸǶȽȇ 8.1 - 7.9 ƂǕ ǒǺȽǺǤǿä ὀǼȞȽ ÛǺȘøşȀȑ Õ̃ǿǽ .TS (ὀ/ȟ 110~) ÿζȇèǺǩζǤǿä

.ὀζŸ+ä ḺȈÕȞǨ ÕǤę ÛǺȘøşȀȑ Õ̃ǿǽ ȷǺõ äǽǕ ÛpH ǒǺȽǺǤǿä ÕǺǼȞǨ ÂDzǺȽ ȷǕ Ǽƶ .ǴȚǵŸŋ

Û(141 ǤȞǺÔǿä Û1963 ÛSRIP) ، R Õ̃ǺøζǺÊǺǿä Ȑþ **TS ὀ ȟ1440~ Phosphoric acid** Õ̃ǺøζǺÊǺǿä Ȑþ

.*d*~1.7

.(142 [illegible] 1963 SRIP) P_2O_5 .**Phosphorus pentoxide R** [illegible]

.$C_8H_4O_3$.**Phthalic anhydride R** [illegible]

[illegible]

[illegible] TS (~750) [illegible]

.R [illegible]

.°[illegible] 130 [illegible]

.**Phthalic anhydride/pyridine TS** [illegible]

R [illegible] 300 [illegible] R [illegible] 42 [illegible]

[illegible] 1 [illegible] (R [illegible])

[illegible] 1000 [illegible]

[illegible]

[illegible] TS [illegible]

[illegible] oleic acid [illegible] .**(Polysorbate 80 R) R 80** [illegible]

.tripolyethylene-glycol 300-sorbitan ether [illegible]

[illegible]

[illegible] *miscibility* [illegible]

[illegible] TS (~750) [illegible]

.(144 [illegible] 1963 SRIP) $C_2H_3KO_2$.**Potassium acetate R** [illegible]

.**Potassium acetate TS** [illegible]

.[illegible] 1000 [illegible] R [illegible] R [illegible] 100 [illegible]

.(145 [illegible] 1963 SRIP) $KHCO_3$.**Potassium bicarbonate R** [illegible]

.(148 [illegible] 1963 SRIP) KBr .**Potassium bromide R** [illegible]

[illegible] R [illegible] .**Potassium bromide IR** [illegible]

[illegible] 3 [illegible]

[illegible] 45 [illegible]) "Spectrophotometry in the infrared region [illegible]

670 - [illegible] 1 [illegible] 250 [illegible]

[illegible] 0.1 [illegible] 4000 cm^{-1}

.1630 cm^{-1}§ 3440

100 ĞæåÀę Ƀζℨ R ÿζŀèÌǩζĢöä ÆĿŋşÀæ ȸ ȯζŸȚ .TS ȯ ȟ100 **Potassium bromide** ÿζŀèÌǩζĢöä ÆĿŋşÀæ ȯζŸȚ
.ÀǫŸöä Ž KBr ȸ ȟ

.(151 ĞĦÀÔöä Û1963 ÛSRIP) KCl **.Potassium chloride R** ÿζŀèÌǩζĢöä ÆĺøζŸÕ

ζŀù ÕŸƺ :ƂÀǫöä øÀĢǫǹŗä ɄøĢŸĂ ɃØöä R ÿζŀèÌǩζĢöä ÆĺøζŸÕ ،**Potassium chloride IR** ÿζŀèÌǩζĢöä ÆĺøζŸÕ
âÀŀę" ɉäζĂ3 ǨƠ 3 ĞÕĂÀÛöä Ž Ȣζòζŋ ζĿ Àŧõ ÀȒĦŀţä î ÀÕŸö öäÀŧΣä ǨƠ ĞȞì ɉä ĞÕÛĂŋ Ž î ÀÔǫŋŗä
ĞĦÀÔöä ÀŢǫä) "Spectrophotometry in the infrared region öäÀŧΣä ǨƠ ĞȞì ɉä ĞÕÛĂŋ Ž ɄəζȒöä ζŀÛöä
öÀÖä Ž ÀĺζǫÊŀ ÀĺÆ3Àę ÀÛǹ ÛĞ3Àè 1 gÆŋ °ÿ 250 ĞDZøÆöä Ž ÀÕæÀè ζÀDzţä ÛR ÿζŀèÌǩζĢöä ÆĺøζŸÕ ȸ Û45
öÀţä ƂÛ gÆəÀĦöä ɁøØöä öÀĂŞèÀæ ÛɃÆ3ÀÕöä Ùʅä àζζ 0.1 ȸ ƎõÛ ĞŀŧŢ3Û î Àǫ ɁøÀæ ÀŢŢŀ ŗ Û670- 4000 cm^{-1}
.1630 cm^{-1}§ 3440 Ž

Ƀζℨ R ÿζŀèÌǩζĢöä ÆĺøζŸÕ ȸ ℨŀÎţä ȯζŸŧä ،**TS** ȯ ȟ **350** **Potassium bromide** ÿζŀèÌǩζĢöä ÆĺøζŸÕ ȯζŸȚ
.KCl ȸ ȯ/ȟ 350 ĞæåÀę

.(154 ĞĦÀÔöä Û1963 ÛSRIP) $K_2Cr_2O_7$ **.Potassium dichromate R** ÿζŀèÌǩζĢöä ğÀŋşÀõ ɄəÀĺę

ȸ3 ÕÖĂ ŗ Àŋ ɁŸ3 ĞĂşÀΣä R ÿζŀèÌǩζĢöä ğÀŋşÀõ ɄəÀĺę **.Potassium dichromate R1** ÿζŀèÌǩζĢöä ğÀŋşÀõ ɄəÀĺę
.$K_2Cr_2O_7$ ȸ %99.9

.Potassium dichromate TS ÿζŀèÌǩζĢöä ğÀŋşÀõ ɄəÀĺę ȯζŸȚ

ÿζŀèÌǩζĢöä ğÀŋşÀõ ɄəÀĺę ȸ Û°ÿ 130 ĞDZøÆöä Ž ÀÕĢÊŀ ĞÀÀƒş ĞŀùζĢȒŋ Ğǫşàζŋ ÛŊŸŋ 60 ĞæåÀę ãäØŀ .*öäÀDZqä*
.Õŋ 1000.0 ʒÀǫǫq VS (ȯ/ȯζŋ 0.005) ÕĺøζÀŸÊöä Ȓ þ ȯζŸȚ ȸ ȣȢ Àõ øäÆÕŋ Ž R1

ÛR ÿζŀèÌǩζĢöä ğÀŋşÀõ ɄəÀĺę ،**VS** ȯ ȯζŋ **0.0167** **Potassium dichromate** ÿζŀèÌǩζĢöä ğÀŋşÀõ ɄəÀĺę ȯζŸȚ
.Õŋ 1000 Ž $K_2Cr_2O_7$ ȸ ȟ 4.904 ɁŸ3 ɃζǫĦŀõ öÀţä Ž ĞæåØŀ

Û1963 ÛSRIP) KH_2PO_4 ،**Potassium dihydrogen phosphate R** ÿζŀèÌǩζĢöäş ƙDZşøÆŀŢä ĞŀəÀĺę ğÀÀÊŀ
.(155 ĞĦÀÔöä

.(156 ĞĦÀÔöä Û1963 ÛSRIP) $K_3Fe(CN)_6$ ،**Potassium ferricyanide R** ÿζŀèÌǩζĢöä ÆŀφÀŀè ɃƘζ

،**TS** ȯ ȟ **10** **Potassium ferricyanide** ÿζŀèÌǩζĢöä ÆŀφÀŀè ɃƘζ ȯζŸȚ

Ž ĞöζÊȢţä ğäøζŸĢöä ãäØŀş öÀţä ȸ ÕŀŸÕæ R ɃøζÏĢöä ÿζŀèÌǩζĢöä ÆŀφÀŀè ɃƘζ ȸ ȟ 1 ĞæåÀę ÕÊȢŀ .*öäÀDZqä*
.Õŋ 100 ʒÀǫǫq öÀţä ȸ ȣȢ Àõ øäÆÕŋ

.ƘȒĦǫöä ʒäÀù TS (ȯ/ȟ 10) ÿζŀèÌǩζĢöä ÆŀφÀŀè ɃƘζ ȯζŸȚ ɉζÕĂ ɉÛ Æƺ :*ČŢğŸŋ*

ĞĦÀÔöä Û1963 ÛSRIP) $C_8H_5KO_4$ **.Potassium hydrogen phthalate R** ÿζŀèÌǩζĢöäş ƙDZşøÆŀŢä ğŗÀζ

.(157

، **Potassium hydrogen phthalate standard TS** ÿźĘèĬǩźĜöäş ƙĎŻşøǼĒŦä ğɍĂǯź ƁøĬĒȞĝ ȯźŸŢ

øäǼŌŋ Ž Û°ÿ 120 ĞĎŻøǼöä Ž ĦÖǽĬè ĜĂĂĎźţä ÛR ÿźĘèĬǩźĜöäş ƙĎŻşøǼĒŦä ğɍĂǯź ȸŋ ȟ 10.21 āäØŀ .*öäĂĎŻqä*

ŌŸǪź ¢φÜ ʔŸʒ ȯźŸǂä äØĿ pH öĬĿĬǽ ȣĂĦŀ .Ōŋ 1000 ǯĬǪφq R ȷźǽĂȮöä ǼĒÊõÜ ʉəĬĂʧ ȸŋ ƃĂʅä öĬţä ȸŋ ǿȣĂõ

.°ÿ 15 ĞĎŻøǼöä Ž 4.00 ĞȶĒŌöä

ĞĦʉĂÔöä Û1963 ÛSRIP) $C_4H_5KO_4$ **.Potassium hydrogen tartarate R** ÿźĘèĬǩźĜöäş ƙĎŻşøǼĒŦä ğäĂʯĂʯ

.(158

.Potassium hydrogen tartarate standard TS ÿźĘèĬǩźĜöäş ƙĎŻşøǼĒŦä ğäĂʯĂʯ ƁøĬĒȞĝ ȯźŸŢ

ǼĒÊõÜ ʉəĬĂʧ ȸŋ ƃĂʅä öĬţä ȸŋ Ōŋ 100 ƃÜ R ÿźĘèĬǩźĜöäş ƙĎŻşøǼĒŦä ğäĂʯĂʯ ȸŋ ȟ 2 ȣĂȒŀ .*öäĂĎŻqä*

ǥøäĂǥ ƃÜ ŌÔǪö ȯźŸǂä ǥøäĂǥ ōĂǪǩ .ƸĂĦǽ ĞŸĎŻźΣä ǯĂĿş ĞĒĎŻĂĎŻä ǥáäǼè ğäǽ ĞŸĎŻźǥ Ž ǥäźǪĦʉţä R ȷźǽĂȮöä

.decantation ǦφĂǽqĬǽ şÜ ǴĒǏĂǪöĬǽ ţĂĿş ÛǼȩƘö ǼŸÔǪţä öĂƨä ōĂǪŀ ÛǦźĂȣöä

.ƘȒĦǪöä ǯäĬù TS ÿźĘèĬǩźĜöäş ƙĎŻşøǼĒŦä ğäĂʯĂʯ ƁøĬĒȞĝ ȯźŸŢ ȷźȮĂ ȷÜ Ǽƶ .*ǦŢǵŸŋ*

.(159 ĞĦʉĂÔöä Û1963 ÛSRIP) KOH **.Potassium hydroxide R** ÿźĘèĬǩźĜöä ǼĒÊõşøǼĒĿ

R ÿźĘèĬǩźĜöä ǼĒÊõşøǼĒĿ ȸŋ ȯźŸŢ **.TS ȯ ȟ 110~ Potassium hydroxide** ÿźĘèĬǩźĜöä ǼĒÊõşøǼĒĿ ȯźŸŢ

.(ȯ/ȯźŋ 2 āøĬŌŀ Ĭŋ) KOH ȯ/ȟ 112 ĞäĂĸ Ɓźʒ

،**Potassium hydroxide/ethanol TS1** ȯźφĬǯĂqä ÿźĘèĬǩźĜöä ǼĒÊõşøǼĒĿ ȯźŸŢ

ȯźφĬǯĂqä ȯźŸŢ ȸŋ ǿȣĂõ øäǼŌŋ ȣĂȒĿş öĬţä ȸŋ Ōŋ 20 Ž R ÿźĘèĬǩźĜöä ǼĒÊõşøǼĒĿ ȸŋ ȟ 40 āäØŀ .*öäĂĎŻqä*

.ŽĬÔöä ŌəĬÊöä ǼȮÊĿş ÛŌĘŸöä ȯäźù ǼõƘö ōĂǪŀ .Ōŋ 1000 ǯĬǪφq TS (ȯ/ȟ 750~)

Ž ĦǽäØȟ ÛR ÿźĘèĬǩźĜöä ǼĒÊõşøǼĒĿ ،**VS ȯ ȯźŋ 1 Potassium hydroxide** ÿźĘèĬǩźĜöä ǼĒÊõşøǼĒĿ ȯźŸŢ

.Ōŋ 1000 Ž KOH ȸŋ ȟ 56.10 ʔŸʒ ƁźǪĦʉĒö öĬţä

ğɍĂǯź ȸŋ ȟ 5 ĞäĂĸ ƸĂĎŻŀ :ĞĒöĂǪöä ĞŌĂĂÛöĬǽ ȯ/ȯźŋ 1 ȯźŸĦʉȶŸö ĘĒęǼöä ÂĒōĂǪöä ȸŋ ĘŌĦʉǪöä ǈǪĂ .*ÈĒĒŌǪöä ĞŌĂĂù*

ƙĎŻşøǼĒŦä ğɍĂǯź ǨφĬõ äǽÜ .ĞĒùźĜȒŋ ȷàźĂş ğĬʒĬè 3 ǥǼŋ °ÿ 105 ĞĎŻøǼöä Ž R ÿźĘèĬǩźĜöäş ƙĎŻşøǼĒŦä

ʉəĬĂʧ ȸŋ ƃĂʅä öĬţä ȸŋ Ōŋ 75 Ž āäØŀ .ƸĒĂĎŻźǪöä ŌĜę ĘĦʉÊĿ ȷÜ Ǽƶ ÛǥƘĜõ ğøźǽĬǽ ŌȮÎǽ ÿźĘèĬǩźĜöäş

TS ȯźφĬǯĂqä/ƙĬöĂǯź ȯźǼĂöä ȯźŸŢ ȯĬȶȞǪèĬǽ Û ÿźĘèĬǩźĜöä ǼĒÊõşøǼĒĿ ȯźŸĦʉȶê ĂĂĬĦĿş R ȷźǽĂȮöä ǼĒÊõÜ

1) ÿźĘèĬǩźĜöä ǼĒÊõşøǼĒĿ ȯźŸŢ ȸŋ Ōŋ 1 ùźĬÖŀ ÿźĘèĬǩźĜöäş ƙĎŻşøǼĒŦä ğɍĂǯź ȸŋ ȟ 0.2042 Ōõ .ĂĦÎȶõ

.ĂĬǽźǪŋ ŌȮÎǽ ÿźĘèĬǩźĜöä ǼĒÊõşøǼĒŦ ĜĂøĬĒȞĝä ŌĒĬǂä ÈĒĒŌǩ áĬĦŀ ȷÜ Ǽƶ .VS (ȯ/ȯźŋ

ȷĂĂŀ ȷÜ Ǽƶ ŌöØö .öäźŢŸö ôĂĦŀ ĬŋǼʒ ȷźǽĂȮöä ǼĒÊõÜ ʉəĬĂʧ ĜĂźŸŌöä ğäǼĒÊõşøǼĒŦä ŌĒĬŢ ÒǪǪ .*ȸĂĂŚǪöä*

.soda lime R ǟǻ̂ǫǟ ƘƛƛǒǷƯ ǟǫǮǟ ǥǻşÂȟ ÛĞȶȮǶȟ ÛĞĞèÀȵ ĞƊǬǬǟ Ƙȡ ğǟǻǽè ğǟǽ ÀǿǟǪ Ž

Ž ǺǿȟÛR ȳǫèÀǬǫǟ ǼÊõşøǼȽ .VS ȯ ȯǫȵ **0.5 Potassium hydroxide** ȳǫèÀǬǫǟ ǼÊõşøǼȽ ȯǫŸȚ

.Ȱȵ 1000 Ž KOH ȸȵ ȟ 28.05 ʔŸʒ ɃǫǶǾ ǒÀȶǟ

ȷǟǫʒ ǨƠ ǴǫǒǫȶǟǴÕÀÛǟ ȶÀǴÀǟ ȯǫŸǶȶŸǾ ȨǾǫǼǟ ÂǼõÀǫǟ ȸȵ ȨȰǶǫǟ ȴǫ *.standardization Ȅ̀ǼȰǫǟ ǴÕÀü*

.VS (ȯ/ȯǫȵ 1) ȳǫèÀǬǫǟ ǼÊõşøǼȽ

Ž ǺǿȟÛR ȳǫèÀǬǫǟ ǼÊõşøǼȽ .VS ȯ ȯǫȵ **0.1 Potassium hydroxide** ȳǫèÀǬǫǟ ǼÊõşøǼȽ ȯǫŸȚ

.Ȱȵ 1000 Ž KOH ȸȵ ȟ 5.610 ʔŸʒ ɃǫǶǾ ǒÀȶǟ

ȷǟǫʒ ǨƠ ǴǫǒǫȶǟǴÕÀÛǟ ȶÀǴÀǟ ȯǫŸǶȶŸǾ ȨǾǫǼǟ ÂǼõÀǫǟ ȸȵ ȨȰǶǫǟ ȴǫ *.standardization Ȅ̀ǼȰǫǟ ǴÕÀü*

.VS (ȯ/ȯǫȵ 1) ȳǫèÀǬǫǟ ǼÊõşøǼȽ

ǼÊõşøǼȽ .VS ȯ ȯǫȵ **0.5 Potassium hydroxide/ethanol** ȯǫǿʒǫǟ ȳǫèÀǬǫǟ ǼÊõşøǼȽ ȯǫŸȚ

.Ȱȵ 1000 Ž KOH ȸȵ ȟ 28.05 ʔŸʒ ɃǫǶǾ TS (ȯ/ȟ 710~) ȯǫǿʒǫǟ ȯǫŸȚ Ž ǺǿȟÛR ȳǫèÀǬǫǟ

ǬÀÁƚ :ǴǼÀǫǟ ǴÕÀÛǟ ȯ/ȯǫȵ 0.5 ȯǫŸǶȶŸǾ ȨǾǫǼǟ ÂǼõÀǫǟ ȸȵ ȨȰǶǫǟ ȴǫ *.standardization Ȅ̀ǼȰǫǟ ǴÕÀü*

ǼÊõşøǼȽ ȯǫŸǶȶê ÀÀȞƚş ǒÀȶǟ ȸȵ Ȱȵ 50 ǿǟǼȰȠ VS (ȯ/ȯǫȵ 0.5) ȰÀǿǫŸõşøǼȾǟ R̀ þ ȯǫŸȚ ȸȵ Ȱȵ 25.0

.ÀȞÎȶõ TS ȯǫǿʒǫǟ/ƙǟǫʒǫ ȯǫǼÀǟ ȯǫŸȚ ȯÀȶȞèÀǟ ÛVS (ȯ/ȯǫȵ 1) ȯǫǿʒǫǟ/ȳǫèÀǬǫǟ

ǼÊõşøǼȽ .VS ȯ ȯǫȵ **0.02 Potassium hydroxide/ethanol** ȯǫǿʒǫǟ ȳǫèÀǬǫǟ ǼÊõşøǼȽ ȯǫŸȚ

.Ȱȵ 1000 Ž KOH ȸȵ ȟ 1.122 ʔŸʒ ɃǫǶǾ TS (ȯ/ȟ 710~) ȯǫǿʒǫǟ ȯǫŸȚ Ž ǺǿȟÛR ȳǫèÀǬǫǟ

ȷǟǫʒ ǨƠ ǴǫǒǫȶǟǴÕÀÛǟ ȶÀǴÀǟ ȯǫŸǶȶŸǾ ȨǾǫǼǟ ÂǼõÀǫǟ ȸȵ ȨȰǶǫǟ ȴǫ *.standardization Ȅ̀ǼȰǫǟ ǴÕÀü*

.VS (ȯ/ȯǫȵ 0.5) ȯǫǿʒǫǟ/ȳǫèÀǬǫǟ ǼÊõşøǼȽ ȯǫŸȚ

.(161 ǴǶÀȮǟ Û1963 ÛSRIP) KI **.Potassium iodide R** ȳǫèÀǬǫǟ ǼÀǻǫ

ȸȵ ȟ 10 ǟǟǾƚ :ƃÀǫǟ ǿÀǫǹɍǟ ɄǿǴƚ ɃǾǟ R ȳǫèÀǬǫǟ ǼÀǻǫ **.Potassium iodide AsR** ȳǫèÀǬǫǟ ǼÀǻǫ

ǥÀÛę 2 ȣÀȒƚ ÛǒÀȶǟ ȸȵ Ȱȵ 35ş AsTS (ȯ/ȟ 250~) ȰÀǿǫŸõşøǼȾǟ R̀ þ ȸȵ Ȱȵ 25 Ž R ȳǫèÀǬǫǟ ǼÀǻǫ

ǴÁÛȷ ǰǫǨ ɍ ÛȰǼǼèǿɉǟ ȰǬɉ ȳÀȞǟ ǿÀǫǹɍǟ ȨǴÛƚş stannous chloride AsTS ɃÀǼÔȰǟ ǼÀǿǫŸõ ȯǫŸȚ ȸȵ

.ǴǼəÀȵ

83 ǴǟÀǿ ʔŸʒ ɃǫƷ R ȳǫèÀǬǫǟ ǼÀǻǫǼǾ ȯǫŸȚ **.TS ȯ ȟ 80 Potassium iodide** ȳǫèÀǬǫǟ ǼÀǻǫ ȯǫŸȚ

.(ȯ/ȯǫȵ 0.5 ǟǿÀȰƚ Àȵ) KI ȸȵ ȯ/ȟ

.(162 ǴǶÀȮǟ Û1963 ÛSRIP) KNO_3 **.Potassium nitrate R** ȳǫèÀǬǫǟ ğǟÀǫȹ

،KNO_2 **.Potassium nitrite R** ȳǫèÀǬǫǟ ǨÀÀǫȹ

[illegible]

[illegible] 750~) TS. [illegible] 0.35 [illegible]

[illegible] **Potassium nitrite** **100** [illegible] **TS.** [illegible] **100** [illegible]

KNO_2 [illegible].

[illegible] **Potassium permanganate R.** $KMnO_4$ (SRIP 1963 [illegible] 165).

[illegible] **Potassium permanganate 10** [illegible] **TS.** [illegible] R

$KMnO_4$ [illegible] 10 [illegible].

[illegible] **Potassium permanganate 0.02** [illegible] **VS.** [illegible] R [illegible]

[illegible] 3.161 [illegible] $KMnO_4$ [illegible] 1000 [illegible].

[illegible] *standardization.* [illegible] 0.02 [illegible]

[illegible] 0.2 [illegible] 110 [illegible]

[illegible] 250 [illegible] 7 [illegible] 1760~) TS [illegible]

[illegible] 70 [illegible]

[illegible] 15 [illegible] 60 [illegible] 6.7 [illegible]

[illegible] 1 [illegible] 0.02) VS. [illegible]

[illegible].

[illegible]

[illegible] **Potassium sulfate R.** K_2SO_4 (SRIP 1963 [illegible] 165).

[illegible] **Potassium sulfate 174** [illegible] **TS.**

[illegible] 174 [illegible] R [illegible] 1000 [illegible].

[illegible] **Potassium tetraoxalate R.** $C_4H_3KO_8,2H_2O$ (SRIP 1963 [illegible] 166).

[illegible] **Potassium tetraoxalate standard TS.**

[illegible] 25.42 [illegible] R [illegible]

[illegible] R 1000 [illegible].

[illegible] **Pyridine R.** C_5H_5N (SRIP 1963 [illegible] 169).

[illegible] **Pyridine, anhydrous, R.** [illegible] R [illegible] R.

[illegible] **Red stock standard TS.**

Ōņ 6.3 ÛTS âȦĦƗȦöä ȷƺǒ ȯƺŸƮ ȡņ Ōņ 6.1 ǿäǼŌņ ÛTS ǨöȦæƺȮöä ȷƺǒ ȯƺŸƮ ȡņ Ōņ 40.5 ƂǗ ȣȦŔł .ǒäǠǲqǟ

Ȓ ƥ ȯƺŸĦƗƚê Ōņ 100.0 ƂǗ ȤȧǺł ÛTS ǼȦǼΣä ȷƺǒ ȯƺŸƮ ȡņ Ōņ 12.0 ÛTS ğȦņȘȦȮöä ƱǝȦȂǿ ȷƺǒ ȯƺŸƮ ȡņ

.ǯȦƭƗş ÛTS (ȯ/ȟ 10~) ŐǿƺȦŸÊöä

.(170 ǴĦȦÔöä Û1963 ÛSRIP) $C_{12}H_6NNaO_4$ **.Resazurin sodium R** ȡǿşàȦÊȦȀöä ÿƺȦẩƺȍ

ʔŸʒ ɃƺǪƷ R ȡǿşàȦÊȦǿ ÿƺȦẩƺÔǒ ȯƺŸƮ **.TS ȯ ȟ 1 Resazurin sodium** ȡǿşàȦÊȦȀöä ÿƺȦẩƺȍ ȯƺŸƮ

.$C_{12}H_6NNaO_4$ ȡņ ȯ/ȟ 1 ǴäȦȀǿ

.ƘŔĦǪöä ǯàȦù TS (ȯ/ȟ 1) ȡǿşàȦÊȦǿ ÿƺȦẩƺȍ ȯƺŸƮ ȷƺȮȦ ȷǗ Ǣƶ .ǴƮǵŸƺ

.(171 ǴĦȦÔöä Û1963 ÛSRIP) $C_6H_6O_2$ Û1,3-Dihydroxybenzene **.Resorcinol R** ȯƺǼèǿȂȦȀöä

.$C_6H_6O_2$ ȡņ ȯ/ȟ 20 ʔŸʒ ɃƺǪƷ R ȯƺǼèǿȂȦȀŸǒ ȯƺŸƮ **.Resorcinol TS** ȯƺǼèǿȂȦȀöä ȯƺŸƮ

ƙǺÊǪöȦæ ȴŌȞǪöä ǿǼĦł .NaCl ȡņ ȯ/ȟ 9 ǴäȦȀǿ ʔŸʒ ɃƺǪƷ R ÿƺȦẩƺÔöä ǼȦǿƺŸǒ ȡņ ȴǾĦņ ȯƺŸƮ **.TS** ƱĦŸņ ȯƺŸƮ

.ȂǴèȦȂņ ǦŌǼęẩ 30 ǥǼņ °ÿ 120 ǦǲǿẩŽ ǿȦǺǴöä ǥǼȍƺņ Ž

.(172 ǴĦȦÔöä Û1963 ÛSRIP) Se **.Selenium R** ÿƺǼȂŸǼÊöä

.ǴņȦè ÿƺǼȂŸǼÊöä ǥȦȠǗ ǿǼĦł .ȦȂǾƠ

.Silica gel, desiccant, R ǦȦȧǲƫä ÛȦȮǼŸǼÊöä ǦņŸȽ

ȯǼǴǪȀ ǥẩȦņ ȂǴöȦȡ ŌȂȣǩ .ǦȦŸǪƯ ÿƺǲƜ ǦǼǲȦǲà ğȦǴǼǵ ŌȮÎæ ǼǲƺǨ ÛȂǼǝȂǲ ȡƗƭņ ÛŌȮÎöä ǷǼʒ SiO_2 .ƵÖƺǟ

ȦȚǪȞè ʒǲȀǪÊł ȷǗ ȡȮƺ ʔǿȂȞņ) Ǵǿƺȹƫä ğȦǲǪȂƫä ẩȂǼǲǪǨ ȷǗ ȡȮƺ .ǒȦƫä ȋȦÔǪņȦæ ȦȚǪȞè ǾȦǪÊł ȦņǼȂʒ ȂŒƺǒ

.ƱŸȍǰä ȡǿƺǒ ÿŸȚä ǾǺǪȀ ʔǿǪǵ °ÿ 110 ǦǲǿǼöä Ž ƙǺÊǪöȦæ (ǒȦƫä ȋȦÔǪņƭ

ʔǿǪǵ °ÿ 50 ± 950 ǦǲǿǼöä Ž ÛǴǼùƺǴŔņ ǴǿşàƺņÛȟ 2 ǼȚŸł .*loss on ignition (ȯȦȞȉqǟ) āȦTqȂæ ǼǕȦöä*

.ȟ/ŊŸņ 60 ȡņ ȀǯŌǗ ǼŌȀ ÛǨæȦǯöä ȷàƺöä

ÛǥǿşǿȦŌöä ʒȑƺǨ ȦȽǼʒ .ȷàƺȘ ÛǴǿşàƺņ ǴȡǿȦƺ ǥǿşǿȦę Ž ȟ 10 ǴäȦȀǿ ʒȑƺł .*water absorption ǒȦƫǟ ȋȦÔǪņǟ*

ǴǒȦǵ Ž ȦȚȞȑƺæ %80 ǴǼǴÊǿ ǴæƺùȀæ ȦȚǼƺ ɃƺƨǕ ȣŸȣöä ʔŌǴȂ ǴŌŸȣņ ǴȂşȦǵ Ž ǴʒȦè 24 ǥǼņ ÛǒȦÛȣöä ǴʒşÂǿȂņ

.ȟ/ŊŸņ 310 ȡʒ ȷàƺöä Ž ǥẩȂȀöä ŌŌǨ ɍ ÛǴǼǿȦǪ ȷàƺȂ .1.19 ǴǼǴÊǿ ǴƺȦǯÔæ ŐǿƺȦŸè Ȓ ƥ ʒņ ȷàäƺǨ

.(173 ǴĦȦÔöä Û1963 ÛSRIP) $AgNO_3$ **،Silver nitrate R** ǴŔȂöä ğäȀǪǿ

ȡņ ȯ/ȟ 42.5 ǴäȦȀǿ ʔŸʒ ɃƺǪƷ R ǴŔȂöä ğäȀǪǿ ȯƺŸƮ **.TS ȯ ȟ 40 Silver nitrate** ǴŔȂöä ğäȀǪǿ ȯƺŸƮ

.(ȯ/ȯƺņ 0.5 āǿȦŌł Ȧņ) $AgNO_3$

ȡņ ȯ/ȟ16.99 ɃƺĦǼǒ ǒȦƫä Ž ǴäǿŊ ÛR ǴŔȂöä ğäȀǪǿ **.VS ȯ ȯƺņ 0.1 Silver nitrate** ǴŔȂöä ğäȀǪǿ ȯƺŸƮ

.Ōņ 1000 Ž $AgNO_3$

[illegible] *standardization* [illegible] 0.1 [illegible]
[illegible] 40.0 [illegible] 100 [illegible]
[illegible] 70~) [illegible] TS [illegible]
[illegible] 5 [illegible]
[illegible]
[illegible] TS (000~ [illegible] 110 [illegible]
[illegible]

Soda lime R [illegible] (SRIP 1963 [illegible] 174).

Sodium acetate R [illegible] $C_2H_3NaO_2,3H_2O$ (SRIP 1963 [illegible] 176).

[illegible] **Sodium acetate 150** [illegible] **TS** [illegible] R [illegible] 150 [illegible] $C_2H_3NaO_2$ [illegible].

Sodium alizarinsulfonate R [illegible] 3,4- [illegible] dihydroxy-9,10-anthraquinone-2-sulfonic acid $C_{14}H_7NaO_7S,H_2O$.

[illegible]

[illegible] TS (750~ [illegible]).

[illegible] **Sodium alizarinsulfonate 1** [illegible] **TS**.

[illegible] 0.11 [illegible] R [illegible] 100 [illegible].

Sodium hydrogen carbonate R [illegible] $NaHCO_3$ (SRIP 1963 [illegible] 177).

Sodium carbonate R [illegible] $Na_2CO_3, 10H_2O$ (SRIP 1963 [illegible] 179).

Sodium carbonate, anhydrous R [illegible] Na_2CO_3 (SRIP 1963 [illegible] 179).

[illegible] **Sodium carbonate 50** [illegible] **TS** [illegible] R [illegible] 50 [illegible] Na_2CO_3 [illegible] 0.5 [illegible].

Sodium carbonate standard TS [illegible]

[illegible] 2.64 [illegible] R [illegible] 2.093 [illegible] R [illegible]
[illegible] R [illegible] 1000 [illegible].

Sodium chloride R [illegible] NaCl (SRIP 1963 [illegible] 181).

Sodium citrate R [illegible] $C_6H_5Na_3O_7,2H_2O$.

[illegible] $C_6H_5Na_3O_7$ [illegible] %99.0 [illegible].

[illegible].

[illegible] TS ([illegible] 750~) [illegible].

[illegible] *appearance of solution* [illegible] 100 [illegible].

[illegible] *water* [illegible] R [illegible] 15 [illegible]

[illegible] 110 [illegible] 130 [illegible].

[illegible] 0.15 [illegible] 20 [illegible]

Non-aqueous [illegible] 0.1) VS [illegible]

Titration [illegible] A (127 [illegible]) [illegible] 1 [illegible] 0.1) VS [illegible]

$C_6H_5Na_3O_7$ [illegible] 8.603.

[illegible] R **Sodium cobaltinitrite** $Na_3Co(NO_2)_6$ (SRIP 1963 [illegible] 182).

[illegible] **Sodium cobaltinitrite 100** [illegible] **TS**. [illegible] R

$Na_3Co(NO_2)_6$ [illegible] 100 [illegible].

[illegible] R **Sodium fluoride** NaF (SRIP 1963 [illegible] 183).

[illegible] R **Sodium hydroxide** NaOH (SRIP 1963 [illegible] 185).

[illegible] **Sodium hydroxide ~400** [illegible] **TS**. [illegible] R [illegible]

NaOH [illegible] 400 [illegible].

[illegible] **Sodium hydroxide ~300** [illegible] **TS**. [illegible] R [illegible]

NaOH [illegible] 300 [illegible].

[illegible] **Sodium hydroxide ~200** [illegible] **TS**. [illegible] R [illegible]

NaOH [illegible] 200 [illegible].

[illegible] **Sodium hydroxide ~80** [illegible] **TS**. [illegible] R [illegible]

([illegible] 2 [illegible]) NaOH [illegible] 80 [illegible].

[illegible] **Sodium hydroxide 1** [illegible] **VS**. [illegible] R [illegible]

[illegible] 1000 [illegible] NaOH [illegible] 40.01 [illegible].

standardization [illegible] 1 [illegible]:

[illegible] 5 [illegible] R [illegible] 105 [illegible] 3 [illegible]

75 ...

R ...

1 ... 0.2042 ... TS ...

.VS (1 ...) ...

standardization ...

.R ...

Sodium hydroxide **0.2** .**VS**

8.001 NaOH 1000

standardization. ...

.VS (1 ...)

Sodium hydroxide **0.1** .**VS**

4.001 NaOH 1000

standardization. ...

.VS (1 ...)

0.05 .**Sodium hydroxide VS**

2.000 NaOH 1000

standardization. ...

.VS (1 ...)

0.01 .**Sodium hydroxide VS**

0.4001 NaOH 1000

standardization. ...

.VS (1 ...)

Sodium hydroxide, carbonate-free, ... **VS** **1** ...

.VS ... 40.01 NaOH 1000

... 600 - 400 ...

R ...

.R ...

VS (ὀ/ὀζ 1) [illegible] 45 [illegible] . *test for carbonates* [illegible]
[illegible] TS [illegible] 20 [illegible] 0.1 [illegible].

[illegible] 1 [illegible] *.standardization* [illegible] 3 [illegible] 105 [illegible] 5 [illegible] 75 [illegible] 1 [illegible] 0.2042 [illegible] TS [illegible] .VS (ὀ/ὀζ 1) [illegible].

[illegible] R [illegible].

Sodium hydroxide, carbonate-free, [illegible] VS ὀ ὀζ **0.5** [illegible] 1000 [illegible] $NaOH$ [illegible] 20.00 [illegible] R [illegible] .VS [illegible] 1) [illegible] .VS (ὀ/ὀζ

Sodium hydroxide, carbonate-free, [illegible] VS ὀ ὀζ **0.2** [illegible] 1000 [illegible] $NaOH$ [illegible] 8.00 [illegible] R [illegible] .VS [illegible] 1) [illegible] .VS (ὀ/ὀζ

Sodium hydroxide, carbonate- [illegible] VS ὀ ὀζ **0.1** [illegible] 1000 [illegible] $NaOH$ [illegible] 4.001 [illegible] R [illegible] **.free, VS** [illegible]

1) [illegible]

.VS [illegible]

Sodium hydroxide, carbonate-free, [illegible] VS [illegible] **0.2** [illegible]

[illegible] 1000 [illegible] NaOH [illegible] 0.8001 [illegible] R [illegible] **.VS**

[illegible]

1) [illegible]

.VS [illegible]

Sodium hydroxide, carbonate-free, [illegible] VS [illegible] **0.1** [illegible]

[illegible] 1000 [illegible] NaOH [illegible] 0.4001 [illegible] R [illegible] **.VS**

[illegible]

[illegible] 1) [illegible]

.VS

(Sodium thioglycolate R [illegible]) ،**Sodium mercaptoacetate R** [illegible]

.$C_2H_3NaO_2S$

[illegible]

.TS [illegible] 750~) [illegible]

.(189 [illegible] 1963 [illegible] SRIP) $NaNO_2$ **.Sodium nitrite R** [illegible]

.$NaNO_2$ [illegible] 10 [illegible] R [illegible] **.Sodium nitrite TS** [illegible]

[illegible] 6.900 [illegible] R [illegible] **.VS** [illegible] **0.1** **Sodium nitrite** [illegible]

[illegible] 1000 [illegible] $NaNO_2$ [illegible]

[illegible] 0.1 [illegible] *.standardization* [illegible]

[illegible] 300 [illegible] VS [illegible] 0.02) [illegible] 50.0

[illegible] 20.0 [illegible] TS [illegible] 100~) [illegible] 25 [illegible]

[illegible] R [illegible] 2 [illegible] 10 [illegible]

[illegible] TS [illegible] VS [illegible] 0.1)

.(190 [illegible] 1963 [illegible] SRIP) $C_2Na_2O_4$ **.Sodium oxalate R** [illegible]

(195 [illegible] 1963 [illegible] SRIP) Na_2SO_4 **.Sodium sulfate, anhydrous, R** [illegible]

[illegible] **Sodium sulfide R**. $Na_2S, 9H_2O$ [illegible] (SRIP 1963 [illegible] 195).

[illegible] **Sodium sulfide TS**.

[illegible] 12 [illegible] R [illegible] 25 [illegible] R [illegible] 100.

[illegible] **Sodium tetraborate R**. [illegible] $Na_2B_4O_7$, $10H_2O$.

[illegible]

[illegible] 20 [illegible] 0.6 [illegible] (~750 [illegible]) TS.

[illegible] *pH Value of a 0.01 mol/l solution* [illegible] 0.3814 [illegible] 100 [illegible] 6.5-7.4. [illegible] 9.15-9.20 [illegible] 25 °.

[illegible] *Chlorides* [illegible] 1.0 [illegible] 20 [illegible] 1 [illegible] (~1000 [illegible]) TS [illegible] "Limit test for chlorides" [illegible] (112 [illegible]). [illegible] 250 [illegible].

[illegible] *Sulfates* [illegible] 0.5 [illegible] 20 [illegible] 2 [illegible] (~70 [illegible]) TS [illegible] "Limit test for sulfates" [illegible] (113 [illegible]). [illegible] 1.0 [illegible].

[illegible] **Sodium tetraborate standard TS**.

[illegible] 3.81 [illegible] R [illegible] R [illegible] 1000.

[illegible]

[illegible] **Sodium tetraphenylborate R**. $C_{24}H_{20}BNa$.

[illegible]

[illegible] R [illegible] light petroleum R.

[illegible] 20 [illegible] 7.5.

[illegible] **Sodium tetraphenylborate** **30** [illegible] **TS**. [illegible]

[illegible] R [illegible] 30 [illegible] $C_{24}H_{20}BNa$.

[illegible] 5 [illegible] 1 [illegible] R [illegible]

[illegible]

[illegible] R Sodium thioglycolate. [illegible] R.

[illegible] **Sodium thiosulfate R**. $Na_2S_2O_3,5H_2O$ (SRIP 1963 [illegible] 197)

[illegible] **Sodium thiosulfate** **0.1** [illegible] **VS**. [illegible] R [illegible]

[illegible] 15.82 [illegible] $Na_2S_2O_3$ [illegible] 1000 [illegible].

[illegible] *standardization*. [illegible] 0.1 [illegible]

[illegible] 30.0 [illegible] (0.0167 [illegible]) VS [illegible]

[illegible] 50 [illegible] 2 [illegible] R [illegible] 5 [illegible] (250~ [illegible]) TS

[illegible] 10 [illegible] 100 [illegible]

[illegible] TS [illegible].

[illegible] **Sodium thiosulfate** **0.05** [illegible] **VS**. [illegible] R [illegible]

[illegible] 7.910 [illegible] $Na_2S_2O_3$ [illegible] 1000 [illegible].

[illegible] *standardization*. [illegible]

[illegible] (0.1 [illegible]) VS.

[illegible] **Sodium thiosulfate** **0.01** [illegible] **VS**. [illegible] R [illegible]

[illegible] 1.582 [illegible] $Na_2S_2O_3$ [illegible] 1000 [illegible].

[illegible] *standardization*. [illegible]

[illegible] (0.1 [illegible]) VS.

[illegible] **Stannous chloride R**، $SnCl_2, 2H_2O$ (SRIP 1963 [illegible] 198).

[illegible] **Stannous chloride TS**،

[illegible] 330 [illegible] R [illegible] 100 [illegible] (250~ [illegible]) TS

[illegible] 1000 [illegible].

[illegible] **Stannous chloride AsTS**،

[illegible] TS [illegible] (250~

[illegible] TS [illegible] fine-grained.

ტ Ōɳ 10ʂ ŏǺƫ ტ Ōɳ 6 ǿǟǼŌɳ Ōɳ 10 Бǚ ȣǺȒɫ .*test for arsenic* (*ǸǭǿǺǟ*) *ŐǼèǿɟ ŌǅɈ ǿǺǬǹɾ*
ɹǺǞǛçʂ ŏǺƫ ტ Ōɳ 50 ǥǿǺǕǾ Бǚ ȣǺȒɫ .Ōɳ 16 ǞǕŌɬʂ ǕAsTS (ȯ/ȟ 250~) ŐǺǿɀǓŏʂǿǼǮ Ȁ ƥ ȯɀǓƮ
ǦǾǺǺǟ ǦǺǕǝǟ ɹɀȯ ɹɀȮǺ ɼ .ŐǼǼèǿɟ ŌǅɈ ȳǺȞǟ ǿǺǬǹɾ ȨǦǕɫ ǺȽǼǺȝ ǕAsTS ɃǞǺǼÔŐǟ ǼǺǿɀǓŏ ȯɀǓƮ ტ
.Ōɳ/ȳǟǞȡʂǞȮɳ 1 ȡȝ ǼǺÂǺ ɼ ŐǼǼèǿɟ ǿǟǼŌɳ ɹǚ ɁǓȝ ǞǮƮɫ ǕǦǺǿǺǼȞɳ ǦǺǕǿ Ōɳ-1 ტ ɟǞǺǟ Őǿǽ ტ ǥǼì ǞʓŏǙ
.(199 ǦȞǺÔǟ Ǖ1963 ǕSRIP) . R ǥǿǾǟ ǺÎɸ ʂǚ R ǺǜǺǕǦǟ ǺÎɸ **Starch R** ǺÎǺǟ
.(99 ǦȞǺÔǟ Ǖ1963 ǕSRIP)**Starch, soluble, R** ǟǟʂǾǟ ǕǺÎǺǟ
.**Starch TS** ǺÎǺǟ ȯɀǓƮ

ŐǺǞȞǾǟ ȝɳ Ǖȯɀǔǂǟ ǟǾȽ ȣǺȒɫʂ ǕŏǺƫ ტ Ōɳ 5 ȝɳ R ǟǟʂǾǟ ǺÎǺǟ ტ ʂǚ R ǺÎǺǟ ტ ȟ 0.5 ʓÂɫɫ .*ǿǟǞǅɋ*
.ǴǹǞɫʂ ǕǻƎɫ ǕȨǝǺǿǻ ǥǼȝ ǥǼɳ ɁǓȣɫ ǕŌɳ 100 ǦǟǞǝ ʓǺǬɋ ŏǺƫ ტ ȣǺŏ ǿǟǼŌɳ Бǚ ǕǨǟǺʓǟ
.ǨȒȞǾǟ ʓǟǺǜ TS ǺÎǺǟ ȯɀǓƮ ɹɀȮǺ ɹǚ Ǽʑ .*ǦƮǵȲɳ*

Ǖ1963 ǕSRIP) . starch-iodide paper R ǼǺǻɀǮǟ ǺÎǺǟ ȧǿʂ **Starch/iodide paper R** ǻɀǮǟ ǺÎǺǟ ȧǿʂ
.(200 ǦȞǺÔǟ

.$C_7H_6O_6S,2H_2O$.**Sulfosalicylic acid R** ŐǮǓÊǮǺèɀǺǓÊǟ Ȁ ƥ
.ǨȽǺǟ ȞǓǺɸǺǝ ʂǚ ȀǮǚ ɹɀǓǟ ǕǺǟɋǟ ȼǦÎǨ ǧǟǿɀǓǟ .*Ȥ ǒɀǟ*
.TS (ȯ/ȟ 750~) ȯɀɸǺʓǺɋǟ ȯɀǓƮ Ǯʂ ŏǺƫ Ǯ Ǧǟʂǝ .*ǦǭǺǟʂǾǟ*

ȞǝǺɳ ȳǺƥ ɁǓȝ ɁǕȣɳ ȧǿʂǻ Ǯ ɭȒǮɫʂ ɹǺǮǓȣǟ Бǚ ტǺÊɫ ǕŏǺƫ ტ Ōɳ 50 Ǯ ȟ 5.0 ǟǟǾɫ .*ǦǟʂǾǟ Ƙȡ ǻǟɀƫ*
ȡȝ ǦǾǺɫǮǟ ɹǟʂ ǼǺÂǺ ɼ .°ȳ 105 ǦǅǿǼǟ Ǯ ȤǺǅɫʂ ǕǦǺǺȞǟ ŌÊȣɫ ǕǦȡǿǺɀ ǴǮìǞǨ ǦŌǨɀǟ Ǝȝ Ǵ̀Ǟɫ .Ǧȝǟè 1 ǥǼɳ
.ȟ 1.0

ɁǿǾǵ ǕƙǨƔǦǟ Ƙȡ ǥǻǺɳ ტ ǕȨǦǜ Ǯ ʂǚ Ǧȡǿǟɀ ǦŌǨɀǟ Ǯ ȟ 1.0 ȤǕǓǟ ǼǮǓɫ .*sulfated ash ǨǺǓÊƫǟ ǻǟɳǺǟ*
ǼǺÂǺ ɼ ǕǦǭɸǺǭ ǼǮǓɫʂ ǕTS (ȯ/ȟ 1760~) ŐǺǿɀǺǓÊǟ Ȁ ƥ ȯɀǓƮ ტ Ōɳ 1 ǿǟǼŌɳ ǦǾǺɫǮǟ ǼǜǞǨ ǕǻƎɫ .ɭȞǺǬǺ
.ȟ/ɳǓɳ 1.0 ȡȝ

175 ǦǟǞǝ ɁǓȝ ɃɀǬȝ R ŐǮǓÊǮǺèɀǺǓÊǟ Ȁ ƥ ȯɀǓƮ .**Sulfosalicylic acid TS** ŐǮǓÊǮǺèɀǺǓÊǟ Ȁ ƥ ȯɀǓƮ
.$C_7H_6O_6S$ ტ ȯ/ȟ

.(202 ǦȞǺÔǟ Ǖ1963 ǕSRIP) SO_2 .**Sulfur dioxide R** ǨǺƎȮǟ ǼǮÊŏǚ ȞǝǺǭ

ǦȞǺÔǟ Ǖ1963 ǕSRIP) . R ŐǺǿɀǺǓÊǟ Ȁ ƥ TS ȯ ȟ **1760~ Sulfuric acid** ŐǺǿɀǺǓÊǟ Ȁ ƥ ȯɀǓƮ
.*d*~1.84 (202

Ȁ ƥ ȯɀǓƮ .**Sulfuric acid, nitrogen-free** ƙǅʂǞǬǾǟ ტ БǺɿǟ ǕTS ȯ ȟ **1760~** ŐǺǿɀǺǓÊǟ Ȁ ƥ ȯɀǓƮ

[illegible] H_2SO_4 [illegible] 1760 [illegible] TS ([illegible] 1760~) [illegible]

[illegible] 8 [illegible] 5 [illegible] 45 [illegible] *Nitrates* [illegible]

[illegible]

Sulfuric acid [illegible] **190~** [illegible] **TS**

[illegible] 1 [illegible] TS ([illegible] 1760~) [illegible] 9 [illegible]

d~1.12 [illegible] H_2SO_4 [illegible] 190 [illegible]

Sulfuric acid [illegible] **100~** [illegible] **TS**

[illegible] 57 [illegible] TS ([illegible] 1760~) [illegible] 1000 [illegible]

d~1.065 [illegible] 1 [illegible]

Sulfuric acid [illegible] **10~** [illegible] **TS**

[illegible] 100 [illegible] TS ([illegible] 100~) [illegible] 1000 [illegible]

Sulfuric acid [illegible] **0.5** [illegible] **VS** [illegible] TS ([illegible] 1760~) [illegible]

[illegible] 49.04 [illegible] H_2SO_4 [illegible] 1000 [illegible]

[illegible] *standardization* [illegible] 0.5 [illegible]

[illegible] 1.5 [illegible] 270 [illegible] 1

[illegible] 50 [illegible] TS

[illegible] 52.99 [illegible] 1 [illegible] (0.5

[illegible] VS

Sulfuric acid [illegible] **0.05** [illegible] **VS** [illegible] TS ([illegible] 1760~) [illegible]

[illegible] 4.904 [illegible] H_2SO_4 [illegible] 1000 [illegible]

[illegible] *standardization* [illegible]

[illegible] 0.5) VS

Sulfuric acid [illegible] **0.01** [illegible] **VS** [illegible] TS ([illegible] 1760~) [illegible]

[illegible] 0.9808 [illegible] H_2SO_4 [illegible] 1000 [illegible]

[illegible] *standardization* [illegible]

[illegible] 0.5) VS

TS (~1760) ... **Sulfuric acid** ... **0.005** ... VS.

... 0.4904 ... H_2SO_4 ... 1000 ...

standardization ...

(0.5) VS.

***p*-Terphenyl R** ... 1,4-Diphenylbenzene ... $C_{18}H_{14}$ ...

Thioglycolic acid R ... **Mercaptoacetic acid R** ...

Thorin R ... 2,7-Disodium 4-[(O-arsonophenyl)azo]-3-hydroxy-2,7-naphthalenedisulfonate, $C_{16}H_{11}AsN_2Na_2O_{10}S_2$.

Thorin ... **2** ... **TS**.

... 0.2 ... R ... 100 ...

... 1 ...

Thorium nitrate R ... $Th(NO_3)_4.4H_2O$.

... (~750) ... TS.

Thorium nitrate ... **0.005** VS. ... 2.401 ... $Th(NO_3)_4$ ... 1000 ...

standardization ... 0.005 ... 0.050 ... (1) ... 0.6 ... 20.0 ... 250 ... (0.1) VS ... TS ... 3.0 ... TS ... 5 ... 1 ... 0.8398 ... thorium nitrate ... (0.005) VS.

Thymolphthalein R ... $C_{28}H_{30}O_4$ (USRIP 1963 ... 207).

Thymolphthalein/ethanol TS ...

... 0.1 ... R ... 100 ... (~750) TS ...

[illegible]

.(209 [illegible] 1963 SRIP) C_7H_8 .**Toluene R** [illegible]

.(213 [illegible] 1963 SRIP) $C_4H_6O_6U,2H_2O$.**Uranyl acetate R** [illegible]

.**Uranyl/zinc acetate TS** [illegible]

[illegible] 5 [illegible] 50 [illegible] R [illegible] 10 [illegible]

[illegible] 30 [illegible] R [illegible] 30 [illegible] TS (~300 [illegible]) [illegible]

[illegible] .TS (~300 [illegible]) [illegible]

[illegible]

[illegible] .**Water, carbon-dioxide-free, R** [illegible]

[illegible]

.**Xylenol orange R** [illegible]

[3*H*-2,1-Benzoxathiol-3-ylidene bis [(6-hydroxy-5-methyl-*m*-phenylene) ,methylenenitrilo]] .tetraacetic acid, *S*,*S*-dioxide,$C_{31}H_{32}N_2O_{13}S$

[illegible]

.TS (~750 [illegible]) [illegible]

.**Xylenol orange indicator mixture R** [illegible]

.R [illegible] 10 [illegible] R [illegible] 0.1 [illegible]

.(215 [illegible] 1963 SRIP) .**Yeast extract, water-soluble, R** [illegible]

.**Yellow stock standard TS** [illegible]

[illegible] 10.7 TS [illegible] 1.9 TS [illegible] 9.5 [illegible]

[illegible] 100.0 [illegible] TS [illegible] 4.0 TS [illegible]

[illegible] TS (~10 [illegible]) [illegible]

[illegible] (216 [illegible] 1963 SRIP) Zn .**Zinc R** [illegible]

:[illegible] R [illegible] .**Zinc AsR, granulated** [illegible]

[illegible] 10 [illegible] .*limit of arsenic* [illegible]

[illegible] 50 [illegible] AsTS (~250 [illegible]) stannated hydrochloric acid

[illegible] 1 [illegible] R [illegible] 10 [illegible]

ȯɀΫʅ ȸɳ Ȯɳ 0.1 ǦɀȦȓǓ Ʒɳ ȪȒȒèǿɉä ȮDZɉ ǿȦǪǹɍä ǻȦȞɫ *.test for sensitivity* *ȄȆHǫȫȁ ȮDZɉ ǿȦǪǹɍä*

.ȂȄɫɳ ȸȮǿȘ ǕƵȄȦǹ ǕȀȦȍǕ ɟɀΫä ǦǺǕǶ ǰǪǨ ǕAsTS ƵȦǺǶä ȪȒȒèǿɉä

.(216 ǦHȦȎä Ǖ1963 ǕSRIP) $C_4H_6O_4Zn,2H_2O$ **.Zinc acetate R** ȭǪȂȫä ǧȦǪȄèǕ